

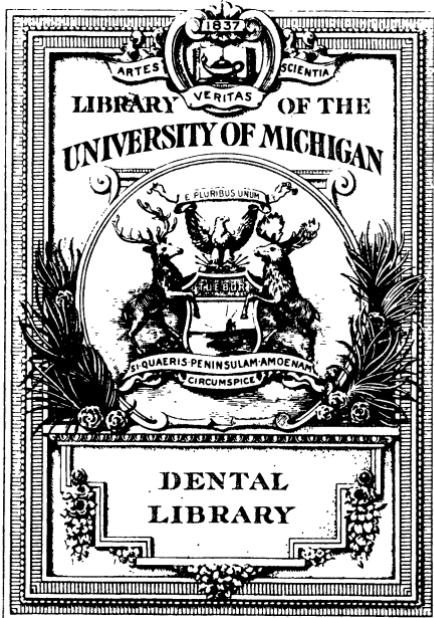
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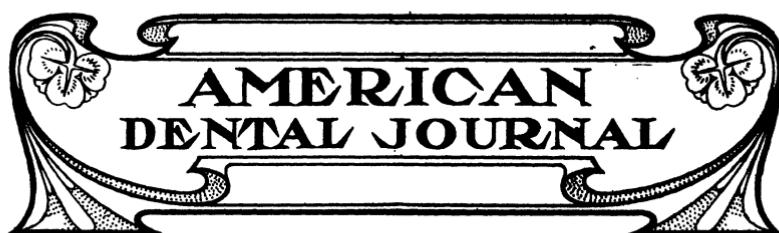
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ORIGINAL CONTRIBUTIONS

PORCELAIN INLAYS.

By J. M. Thompson, Detroit, Michigan.

To the up-to-date reader the subject of porcelain is becoming one of everyday life. Those who are working as well as reading are finding it an element of practice which stimulates toward greater efforts in every line of our work.

There is not the slightest opportunity for the gold filling crank to point the finger of scorn at the porcelain worker, as it requires a far greater amount of artistic ability and fully as much technical knowledge to put in a perfect inlay as it does to put in the finest gold filling.

Although this work has been known to the profession for nearly a score of years, the last five have witnessed its greatest advancement. Materials have been brought to a greater state of perfection, and many obstacles overcome. Colors are no longer a menace to our happiness, and the time seems not far distant when trouble from cement will be a thing of the past.

The diversity of theories regarding cavity preparation is at present very great, and each writer claims to have the best method. This may be a natural consequence at this time, but the day will come when the best ideas will prevail in this as in every other line of work.

Simplicity should be the governing thought in every case, and if in gold work extension for prevention is good, in porcelain work it is better, in fact best. It gives ample room for first-class work and brings all joints out where they can be kept clean and under the observation of both patient and operator. Cavities with margins well extended, a good wide step and a properly prepared seat are far superior to all other forms both in theory and practice.

Too many enthusiastic porcelain advocates are apt to become one sided and attempt with porcelain what would be far better if done with gold. Good judgment begets few failures but many friends, and the latter are necessary for our success.

Porcelain really supplies the third leg to the tripod of operative.

dentistry and gives greater possibilities to this branch of our work. Declarations by the best-known authorities that inlays have come to stay are so frequent of late that it will soon be an established fact. The names of Land, Capon, Reeves, Jenkins, Brewster, and many others are already very familiar, and too much credit cannot be given to these tireless workers.

With the advice given by most writers regarding working upon teeth out of the mouth, I heartily agree. There are so many points to be learned (which are seen to a greater degree of accuracy) that this work is almost absolutely necessary. Experience will teach us sooner or later that saliva sometimes covers a multitude of sins; consequently we must be thoroughly prepared before attempting practical cases.

Some of the benefits of working upon the model in the laboratory are as follows. In the first place it affords opportunities to study cavity formation and the proper preparation of enamel edges. It also gives an accurate knowledge of the anatomy of the tooth and thus aids in avoiding pulp complications. Secondly, it teaches the different methods of securing a perfect matrix and how to avoid making a poor one. Platinum works differently in cavities in the incisors than it does in molars; consequently we must study its peculiarities in each case. In the third place the laying in of the porcelain and its different qualities become more familiar to us.

Cement wears longer upon articulating surfaces than at the gingival margin, especially if the cavity extends under the gum, making it imperative that a perfect joint must be made at this particular place. The lateral margins are next in importance, and if brought well out are not liable to give trouble. With these parts taken care of the rest is comparatively easy.

Dr. Reeves is somewhat radical in his ideas regarding the use of the smallest amount of cement possible, and up to date I find that he is right, as inlays set under pressure are much less liable to give trouble than those that are simply put in place and left to take care of themselves. Nearly all the failures that have fallen to my lot have been in cases where it has been impossible to insert a wedge. There is a vast difference between pressure and force, and it does not take many seconds when using the latter to show us that it is out of place in porcelain work.

The practical side of inlay work differs very little from other kinds after definite methods have been developed. It takes some operators a long time to find out that two planed surfaces brought

into close contact make a perfect joint, and until they do their days are full of disappointments. With this fact in view the writer wishes to set forth a few general ideas evolved from considerable experience and reading.

In the August issue of this journal in the second chapter of the very comprehensive article by Dr. Roach, the predominating idea regarding cavity preparation is square corners, and as a result square cavities. Upon reading his descriptions and theories regarding retention, etc., my experiences as a beginner were recalled, and I wondered if it could be possible that someone else had succeeded where several others, including myself, had failed.

It is not my purpose to antagonize the writer just mentioned or



Fig. 1.

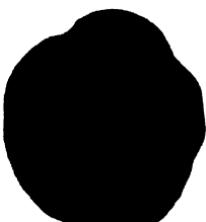


Fig. 2.

any others except in a friendly way; and they are at liberty to answer in the same spirit.

Fig. 1 corresponds with Fig. 6, page 487, of the August number already mentioned.

There are at least three good reasons why cavities prepared as shown in this drawing are not ideal. In the first place they are not formed according to the best teachings of to-day. The lateral walls are not cut away, but are left to give strength and retaining power to the cement. This ultimately becomes an element of weakness, as the cement is more liable to wash out of joints located between the teeth than from those so situated that they may be kept clean.

In the second place, where an inlay is made in a matrix burnished directly into such a cavity, it is almost impossible to secure a perfect fit. We are now using platinum that is supposed to be 1-1000 of an inch in thickness, and in a cavity prepared thus we have too much space occupied by metal. It does not take much figuring to prove that the inlay when stripped will be 1-500 of an inch too narrow without adding to it a slight amount of shrinkage, which is always a consideration. This leaves an open joint on one side or the other of the cavity, which cannot be equalized with any degree of accuracy during the setting process.

In the third place, it is impossible to make a cylinder fit a square hole. Whether it is high or low fusing, porcelain has a tendency to become spherical, and all work should be so conducted that advantage may be taken of this fact. This was so clearly demonstrated by one of Jenkins' representatives during one of his visits to this city that I feel sure of my ground for this statement. Being an ardent advocate of high-fusing porcelain, but at the same time open to conviction, I took a tooth, in which I had failed to secure a good fitting piece of work and asked the gentleman to make a filling for it with the Jenkins' body. After examining the case, he told me that the trouble was not in the working of the porcelain, but in the preparation of the cavity. After removing the angles and having in their place easy curves the results were beautiful. That was some time ago, but the lesson made a deep impression, which has been enduring and gratifying.

The only way in which a perfect filling could be made for a cavity as shown in Figure 1 would be to take an impression in cement, or some other hard substance, and burnish the platinum over it after it has been prepared as a die. This will produce a matrix exactly the same size as the cavity and the inlay should fit as closely as the impression. As far as theory goes this idea is very fine, but regarding its practicality I am not at present enthusiastic. The impression idea is, of course, an old one, but in most cases it is the longest way around.

It is hard for the most of us to break away from our inborn ideas of retaining forms and depend entirely upon cement to hold our work in place. An entire giving up of these ideas is not really necessary in every case, as it is sometimes advisable to make slight undercuts after the inlay is ready for setting.

Referring to Figure 1 and comparing it with Figure 2, we will see a marked difference, perhaps with a small increase in the length of line between the buccal and lingual margins. It will be noticed in Figure 1 that the sulcus ends abruptly in the center of the cavity, which, if at all deep, would soon cause trouble. With a cavity prepared as shown in Figure 2, it is possible to restore the exact form of the tooth and obtain results every bit as strong as claimed for Figure 1. In preparing cavities of this class in teeth with very long cusps and pits correspondingly deep, it is generally advisable to fill the parts into which a matrix cannot be successfully burnished before preparing the remainder of the cavity. Where an opportunity to form a good wide step is afforded, if prepared as shown in Figure 2, a filling strong enough to withstand any judicious use can be made.

(To be continued.)

ADENOIDS (2).

By Cassius C. Rogers, A. B., M. D., Professor of Physical Diagnosis,
Chicago College of Dental Surgery.

Time at Which Adenoids May Occur.—Continuing with diseases of the nose, mouth and pharynx, I desire to call the attention of the reader to the reports of certain diseases of the pharynx by some of the prominent men who have studied this region very thoroughly, which will perhaps serve in enabling him to tell his patients when they present themselves what can be expected as a result of treatment and what the parents can expect in the way of improvement in the child, this having reference, of course, to his dealing with children under the age of twelve years. Delavan and Wright, however, have noticed it in women over thirty years old, and Shurley reports one case of adenoids which developed in a woman after she was twenty years of age—no traces of adenoids were found in this woman before that time. Brendel says that they are uncommon before the third year. Exception, however, has been taken to that statement, because they are found in children at a very early age. I have myself seen them in children that were only six weeks old. I have in mind one case where the patient was unable to articulate clearly at the age of fourteen months, no words could be uttered so that one could distinguish what was being said; the child was fairly bright, only the power of speech was affected, there being a hoarseness of the voice. The child began to erupt the teeth normally at the age of six months, and by the time she was fourteen months of age the incisors, which had erupted at six months of age, had commenced to decay, she had adenoids at the age of fourteen months; she really had the hypertrophied tissue at six weeks of age, however, for the folds of mucous membrane in the posterior nasopharynx were discovered at that time. The laryngeal tonsils were also very much enlarged. The child was operated on at the age of fourteen months, both the laryngeal tonsils and the pharyngeal tonsil being thoroughly removed under a general anesthetic. In three or four weeks the child began to talk more distinctly, and to-day she can talk as plain as any child of two and one-half years of age. The difficulty about the enunciation of words was simply this: The adenoids in the posterior nasopharynx caused a hyperemia, and as the congested condition traveled down the posterior wall of the pharynx it was transmitted to the larynx, causing a slight hyperemic or congested condi-

tion around the vocal cords, this making the voice husky and the tones thick.

Percentage of Hereditary Cases.—As regard sex, adenoids are found as often in the male as in the female child. According to Hajek, ten per cent of the cases are hereditary; that is, ten per cent of the patients with adenoids which come under the observation of the practitioner have a corresponding family history—either the father or the mother when a child was the victim of adenoid vegetation, and if one looks up the relatives farther removed—aunts, uncles, etc.—one will find a much larger per cent than that given. The disease is often congenital, and if we have these diseases developed from the condition of the father or the mother, the disease could be hereditary just the same as cancer would be hereditary when we find one individual in the family suffering from cancer and upon getting the family history we find that there have been several similar cases; however, whether this is hereditary or not is a question, for probably there is no one, if we were to trace the family history back far enough, but there could be found some of the ancestors had died from a malignant tumor.

Bird and Reptile.—Swain, in his Comparative Anatomy, says that the pharyngeal tonsil is common in birds and reptiles; in fact, this tonsil is more prominent in the bird and reptile than any other tonsil; it is normally large, and it would be a pathological condition if they did not have a large gland or tonsil in the posterior nasopharynx.

Laryngeal and Lingual Tonsils.—Hajek's statistics show that in the cases of enlarged pharyngeal tonsil, 76 per cent have enlargement of the laryngeal tonsil of one or both sides; 69 per cent of these having enlargement on both sides, 7 per cent on only one side.

Therefore when a child is examined with adenoid vegetation in the posterior nasopharynx, one should not stop investigation there, we must look farther. Examine the pharynx on either side between the anterior and posterior pillars or the tensor palati muscles, and you will find a gland which is composed of lymphoid tissue and the enlargement is composed of lymphoid and glanular tissue; this is called the laryngeal tonsil. To remove an adenoid growth and leave the laryngeal tonsil enlarged and diseased would be doing your work in the same manner as to fill the cavity in a tooth for one of these individuals and leave the pharyngeal tonsil diseased and in

place. If the teeth are to be properly taken care of, the pharyngeal tonsil and throat must be taken care of; if these are not going to be taken care of the patient might as well be dismissed and no work at all done, for it would be similar to filling a cavity and neglect to polish it.

Deformity of Palate and Deviation of Nasal Septum.—Now



PLATE 1. Shows the occlusion of the teeth in a girl 12 years old, who has been a victim of adenoid vegetation from early childhood.

comes a very important point from a dental standpoint, and one over which there has been a great deal of discussion, and that is the deformity of the hard palate and the deviation of nasal septum. I have stated that the nasal septum could be deviated either to one side or the other; generally in cases of deviation of the septum we find a



PLATE 2. Shows a side view of the occlusion of the same patient.

high vault to the mouth, the superior maxilla is illy developed—a pathological condition we might call it, in which there is what is called the V-shaped vault to the roof of the mouth. As to the cause, it is often congenital. Frequently the roof of the mouth is wanting

—a case of cleft palate; the bones in early fetal life come toward each other, but if the cartilaginous tissue from which they are formed fails to come in apposition the surfaces become covered with mucous membrane, and at birth we can look into the nasal passage, there being what is called a cleft palate. If, however, we have a septum of the nose that is too soft and is deviated to one side or the other, and we have a V-shaped vault to the mouth, the sides of the roof of the mouth coming in apposition, but the vault or arch being much too high, we have a tendency towards a cleft palate; although there has been a union and a completion of the palate, yet these individuals never talk as distinctly as those who have a lower vault to the mouth, due to the narrowness and also to the fact that the tongue, instead of fitting properly to the roof of the mouth, must be thrown up entirely too high, the tongue has a great deal too much latitude, and the words are not pronounced distinctly.

Körner and Waldow claim that adenoids are often responsible for the deformity of the superior maxillary—the V-shaped arch to the palate. Gleitsman differs, claiming that there can be no deformity of the hard palate due to adenoids and mouth-breathing. I am sure that breathing through the mouth, due to a stenosis of the nasal passage, can cause an illy developed superior maxillary bone, especially if the adenoids are present before the child begins to erupt the deciduous teeth; after the teeth are once erupted, the development of the adenoids will not, I believe, have as marked a tendency to cause a deformity of the superior maxillary bones as if the adenoids are present very early in life, because, after the teeth are once erupted, it is more difficult for a change to take place in the position of the superior or inferior maxillary bones than it is before the teeth are erupted. If you have a nasal septum that is deviated, the maxillary bone being composed of tissue which will be osseous in time, but which in infancy is cartilaginous near the suture; it stands to reason that if the person is breathing through the mouth, the mouth continually open, the weight of the lips and the traction of the muscles of the malar and labial regions of the face will cause the superior maxillary bone to become narrow. Take any soft bone and put a very small amount of pressure on it, and you can shape that bone in a mal-position. If a child after six years of age starts to school and sits on a bench so high that the feet cannot touch the floor, and the limbs hang over the edge of the seat, the weight of



PLATE 3. Shows the irregularity of the teeth, the lateral incisors being almost directly back of the central incisors. The narrowness of the jaw and the high vault or V-shaped deformity of the roof of the mouth or hard palate.

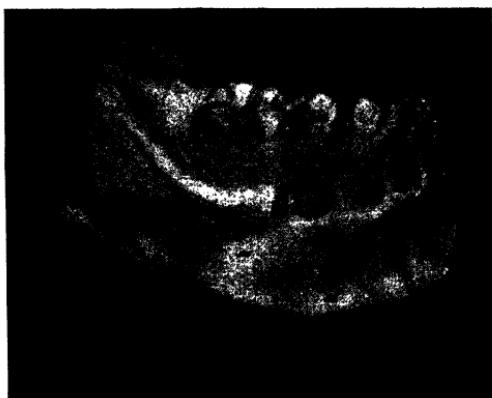


PLATE 4. Shows the irregularity of the teeth of the inferior maxilla. Absence of the second bicuspid of the right side and decay of the first molar of the left side.

the feet will cause a curvature in the femur; if that six-year-old child's limbs can have produced in them a curvature marked enough to cause a deformity when he is in the school-room only four or five hours a day, up and running around the rest of the day, why would not the contraction of the sphincter muscle around the mouth and the weight of the muscles and the tissues on the superior maxillary bone cause a malposition or an ill-shaped position of the superior maxillary bone? There is no reason why they should not if we have these pathological conditions present.

Time of Operation.—Then when these children are brought to the dentist early with this deformity, the only way to correct the arch of the roof of the mouth and to have the superior maxillary bone developed properly is to resort to such treatment as will enable the individual to breathe through the nose. I do not agree with the author or physician who advises the postponement of the operation for the removal of adenoids until the child is five or six years of age; I believe in removing the adenoids just as soon as a positive diagnosis that they are present can be made, whether it is at the age of one year or twenty-five years—it makes no difference.

In Rachitic Cases.—In the case of the ill-development of the hard palate, the deciduous teeth may erupt practically even and in their normal position, while if the deviation of the palate goes on towards an abnormal position, a high vault, etc., it still continues, it does not stop with the eruption of the teeth, just the same as when a child is bow-legged, having in the beginning only a slight curvature of the femur or the tibia, the more he walks the more bow-legged he becomes, and that will continue until the individual is far advanced in years—seventeen or eighteen years of age sometimes. It depends of course, on the rapidity of the ossification of the bone. In the case of a child suffering with rickets, the bones of the limbs are soft and are often curved. If a child is suffering from rickets and the bones in one part are soft, the bones in another part can just as easily be soft, and in these cases or rachitic children with a softening of the bony structure we often find present the adenoids, the enlarged laryngeal tonsils or the high vault to the mouth.

Decay of Deciduous Teeth.—The deciduous teeth of these individuals decay early. In the case of the child referred to at the beginning of this article the teeth, as stated, began to decay before the child was fourteen months of age. You will often see these

children at the age of four years with the deciduous teeth decayed to such a degree that there is nothing left of them but a row of stumps, the crowns decayed down to the gum. This causes an unhealthy systemic condition, because the air in going through the mouth passes over these decayed teeth and the bacteria from the teeth are inspired into the lungs, and we cannot expect a child to grow up and be a healthy individual if it is breathing pathogenic germs into the lungs from the time it is old enough to breath until maturity.

Complications.—Hajek, in 1886, compiled the following table:

In 30 per cent of his cases with adenoids the nasal passages were free.

In 12½ per cent exostosis of the septum was found.

In 50 per cent hypertrophy of the inferior turbinate existed.

In 60 per cent excessive catarrhal secretions of conditions were present.

So that we may find an enlarged pharyngeal tonsil with no other pathological condition around the throat or mouth; the nasal passages may be free, the child breathing through the mouth simply because it is unable to get the air through the posterior nasopharynx, the rest of the passage being perfectly clear.

In 1886 Ascherbrandt made experiments which demonstrated the importance of nasal breathing. He worked out and showed the pathological conditions which were present, deducing therefrom his ideas as to the diseases resulting to the system in general by mouth-breathing. These are so extensive that it will not be possible for us to take them up here and discuss them. Some of them, too, are considered obsolete or of no scientific value at the present time.

Macdonald, Eames and Hopkins laid great stress on nasal stenosis, claiming that it was the cause of most of the cases of enlarged pharyngeal tonsil. To this again exception has been taken; the enlarged pharyngeal tonsil may be due primarily to nasal stenosis, but often these pharyngeal tonsils are developed even before we have the stenosis present, the stenosis of the nares being secondary.

Tubercular Conditions.—Another very important consideration in this connection is the history of tuberculosis. This malady is found in children whose parents or relatives give the history of tuberculosis. It is even claimed by some that if the tissue of the enlarged tonsil be hardened and examined under the microscope we

may find traces of tubercular tissue or the bacillus of tuberculosis in this enlargement; some authors go so far as to claim that all these enlargements of the posterior nasopharynx are due either directly to tuberculosis or to secondary tuberculosis from some other part. Anyway, we know this to be true: That in a family where the history shows a line of tuberculosis going through several generations, we find that the offspring of these tubercular parents show a greater percentage to be troubled with adenoids than the percentage of individuals where the family history does not show a tendency toward tuberculosis. So it becomes our duty when these individuals are brought to us to remember that probably there is a tubercular history either near or remote, and that for the child to breathe through the mouth, taking in pathogenic germs from the air and from decayed teeth, undoubtedly causes the lungs to be in an infected condition, and the child is just that much more susceptible to the tubercular germ, giving it a place to lodge and develop, and consequently there is developed a pulmonary tuberculosis which will finally cause the death of the patient.

Of the men who have examined the adenoid tissue not one has yet been able to find the tubercular bacillus present. We know that we have a tuberculosis of this region which is entirely different from adenoid vegetation; we may have a tuberculosis of the throat, causing the so-called tubercles (elevations) in this region, which simulate somewhat the enlargements called adenoids, but the history and the symptoms are entirely different. A child with adenoids does not complain of pain—complains practically of no disease or symptoms whatever of the nose and throat so far as pain is concerned; the symptoms present are *objective symptoms*, and not those that you get from the patient. So do not mistake the rare condition of tuberculosis of the pharynx for adenoid tissue, for it would be a grave mistake to operate on tuberculosis of the pharynx for adenoids; it would simply open up atria for infection, when the chances are that the patient would die from military tuberculosis.

M. Lermoyce has found some of the glands tubercular. In the examination of 201 specimens of these glands M. Goine found streptococci present 37 times; staphylococci, the pure culture, 69 times; staphylococci with other bacilli, 69 times; pneumococci, 3 times; the leptothrix, twice.

Lermoyce found in patients suffering with adenoids, collateral tuberculosis, thirty times; hereditary tuberculosis, eighteen times; acquired tuberculosis, seventeen times. So we see we have a very high percentage of tubercular history in these cases.

(To be continued.)

TOOTHSOME TOPICS.

By R. B. Tuller, D. D. S.

No. 5.

"Hullo, Doc! How you vas? I don't vas schared of you dis times. But say, Doc, I vas getten tired of bitin' off vind und paby foods only. Measure me off shust so quick you can vor some store teese—goot vons dot vill pite pumpernickel und pretzels; I was sick fon schlop tings. Efen kraut I can't not bite; I can only bump it mit my gumps before I schwallows it. Ach, Gott, dot vas no goot."

"All right, Mr. Schwenke, I will take an impression of your mouth right away."

"Impression? Yah, dot is right; make a goot imbrressions—see? Goot imbrressions vas goot recollections. Pad imbrressions vas pad recollections, don't it? I know dot, vor der oder tay ven dot Marines Pand vos here und vas marchen Stadt street up, I like dót music. Dot vas goot imbrressions. But, say, I haf to fight mit mine-self to keep me from chumpen oudt and kick dot trummachor ven he vas gitten gay and vos doing dose monkey-doodles. Und dot pase trummer, I say to him, mit a schneer: 'Boomp, boomp, go to—I dond care vare, I haf got t'rough mit you!' You see, Doc, dot vas pad recollections come pack shust like dot. Boomp, boomp; himmel! I don't forgot him mit der toothaches—O, you vas ready to tooken dot imbrressions, hey? All right, go aheadt."

"Not ready just yet. I first want to try this cup in your mouth."

"Cup? Dot looks like a schoop. Und dot goes in my mout? You first haf to cut him open some. No? Vell, of you got him in und you don't can got 'im oudt; how about dot? Den I wouldt pe in a hal of a fix. I could not bite peer even, und I could not goot English sprechen; nor yet der mutter tongue. Ach, I tink it petter I vait a week und I stretch my mout efery day und den I comes pack; yes? No? You can my mout stretch? Vell, go aheadt den. I shut mine eyes. * * * O, say, dot vas easiness. You vas all right, Doc."

"Well, now I'm going to mix up some plaster, and when that is done I must get it in your mouth quickly before it begins to set; so if you will kindly be all ready and make up your mind to be quiet until it is done, I will be obliged."

"Vot is dot? You goin' to stuck up my mout mit plaster? Say, Doc, you vas foolen. My oldt womans say you tooken it mit chewin' gumps."

"Plaster is better in this case."

"O, vell, you vas der doctor. * * * Gracious Peder! Doc, vas haben sie? I don't can tooken dot in. Ach, Gott in— * * * Vas it tooken? Vell, py Chimminetty! dot stuff make me feel like foolishness. I shust begin to tink, Doc, you vas a fiend und vas goin' kill me by strangulations und heart sthop. Vas it a goot measure, Doc? So? Vell, den, you vill hurry up und make der teese. I can use them—mebby. I need 'em. Say, Doc, it vould pe pad pisnes of I should got madt now—awful madt.

"How's that, Mr. Schwenke?"

"How is dot? Vy, I couldn't not my teese gnashen; vot? Vell, goot bye, Doc, I comes Montay for der teese. Good pye."

MONDAY.

"Vell, here I vas some more, Doc. Haf you der teese made? So? Goot! Let me see dem. Gootness Peder! you didn't got dem oudt fon some deadt mans, didt you, Doc? Dey vas look like a skulliton—all bite. I shall be schared to put mine fingers in my mout. Holy schmoke! Doc, I nefer can got dot whole pisness in—yes? Top und bottom? Vare vill I put my tongue? Schallow it, vot? Chimminetty! Vot a feelings! like a dry wooden chip up against der meat, unt I haf no taste. Dunder und blitzen! I nefer can vare dem. Dey vas tight sticken like new shoes. Vill dey make corns on my gumps, doc? Ach, dey vas hurt—dey vas stick in der meat—here und here und here. Himmel! I feel foolishness. I nefer can goot English sprechen; everybody tink I vas Dutch. I can vare 'em not, nefer. I pay you vor 'em, Doc, but I vill trow dem oudt a ten story vindow. Dey vas no goot! But I can't not get 'em oudt. If I don't got 'em oudt putty soon I haf a fit, dey vas gacken me—ach, oop, ugh."

"Here is some salt water. Hold it in your mouth a little and you'll be all right soon."

"Yah, I vas all right now; I vas petter. I don't feel dot gackiness no more. Ach, but I do! ugh, ugh, oop. Gif me some more salt prine!"

"Here you are. Don't try to get them out; I'll fix them for you soon."

"Ach, brzz, ugh, I challow der prine. I vas nearly deat, ugh, ugh!"

"Stick to them a little while. I'll soon relieve you."

"Stick to 'em.' Dot vas goot atvices, Doc, but I don't have to stick to 'em, dey vas sticken to me. I dond can got 'em oudt. O, I vas sorry my oldt tees vas aus ge speilt. I can get 'em pack nefer. Gott in himmel! Say, Doc, I can schwear all right. Der tam tings

vas sticken in der meat, here, und here, und here."

"I'm glad to see them stick in so tight. We won't have to use any tacks or screws. Make up your mind to grin and bear it a little while until I can locate the trouble and then I can trim them a little."

"But dey stick me in der meat, here und here und—"

"Yes, yes, I know that; but I'll fix that if you will make up your mind to grin and bear it a little."

"Who vas Crin and Parrett? Vy shall I make up my mindt to dem? I make up my mindt to mineself, und I tink it vas to go up on der Masonic Temple und drop der tees off der roof—of I could got 'em ould vonce. Dey stick me in der meat, here, und here, und—"

"I know that, I know that. I told you I'd fix that as soon as I see just what must be done. I'll get them out in a minute, but first look in this glass and see how you like them. They make a new man of you."

"Dere you go mit do hypnot pisness again. Vell, py gracious, dey do look nice! Ven I vas a young man I vas look shust like dot vay. Yah, Doc, you make me look young some more. I like dot, but—dey stick me in der meat, here, und—"

"All right, I'll take them out now. Here they are."

"Py Chimminetty, Doc! You got em! I couldn't got 'em. How is dot? Haf I to come to you every day to haf dem tooken out? No? Vell, I haf to get some eddications how to do dot myself."

"There! I have cut away the places where they hurt, and I think they will go easier. Put them in yourself now."

"Me? Vell, dis was a puzzle pisness. Vich von goes up stairs?"

"Not that way, Mr. Schwenke; you've got the front to the back. Turn them around. Now you've got them wrong side up. Let me show you."

"Tam der tings, Doc; I nefer can do it. Vell, dey feels better now. Let me see dot glass again. Vell, Schwenke you vas a young looking chap mit der tees, but don't you got too gay, mit dot skating park on top. Doc, you tink I vas talken petter English now? Ven I get dem used to me I tink no vone dake me for a Dutchmans, hey? Doc, you vas all right. You vas a goot dentist und I tole eferyody. I vas habby like a kidt. Und say, Doc, ven der pand goes speilen der street t'rough und dot tam trummachor makes monkey-doodles some more, und der dwo fists of der trummer blay racktimes, I vill not act foolishness, but I will be shust like Tetty Roosevelt; I vill skin my tees und schmile, und I vill in goot English say? 'Go to—Kalamazoo! I haf dot habby schmile dot von't come off, und dot tees vot nefer aches.'"

(Toothsome Topics every month.)

SOUVENIR MEDAL

THE SOUVENIR MEDAL OF THE FOURTH INTERNATIONAL DENTAL CONGRESS.

We present herewith an illustration of the medal authorized by the committee of organization as a souvenir commemorative of the Fourth International Dental Congress, to be held next year in St. Louis, Mo., August 29 to September 3, inclusive.



The figure upon the obverse side—that of St. Apollonia, which has been selected to typify dentistry—is one which not only serves the symbolic end, but one which lends itself particularly well to artistic treatment. The original design from which our illustration is reproduced is an artistic representation which has both merit and beauty.

The symbolism of the reverse of the medal has been given ample consideration, and it is such, we think, as should meet with general approval. The university and international character of the congress movement is typified by the continental divisions of the world.

The associated dates at the top of the design are those which embrace the professional life history of dentistry. Falling gracefully down between the continents is a scroll upon which is to be inscribed the names of the recognized fathers of dentistry in all countries, each national body being asked to nominate the name or names to represent the respective countries. The pose of the eagle represents the



auspices under which the congress is to be held, and the palm branch a tribute of honor on behalf of the American profession to the fathers of dentistry.

The execution of the dies will be entrusted to the most expert die-sinker in America. The design will be in high relief, and the medal will be struck in bronze and will be about two and one-half inches in diameter. It will be a finished work of art in all respects and an attractive and interesting souvenir of the great meeting which it typifies.

The medal will be supplied only to those who make application for it in advance of the congress, as the number struck will be limited to the number subscribed for. The price of the medal without a case has been fixed at five dollars. Cases for the medal will be furnished at prices corresponding with their character and quality.

PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.

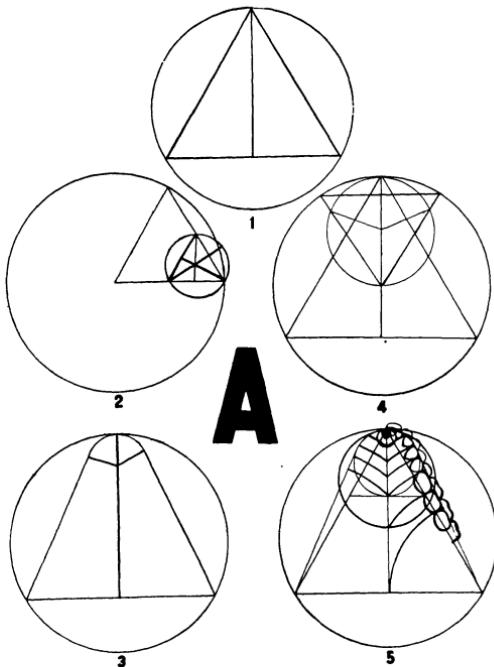
(Professor of Prosthetic Dentistry and Techniques of School of Dentistry, University of Illinois.)

CHAPTER IX.

ARTICULATION AND OCCLUSION—Continued.

DIAGRAM C.

The individual tooth, as nature supplies it, is free from immediate support; the neighboring teeth approximate but are in no sense



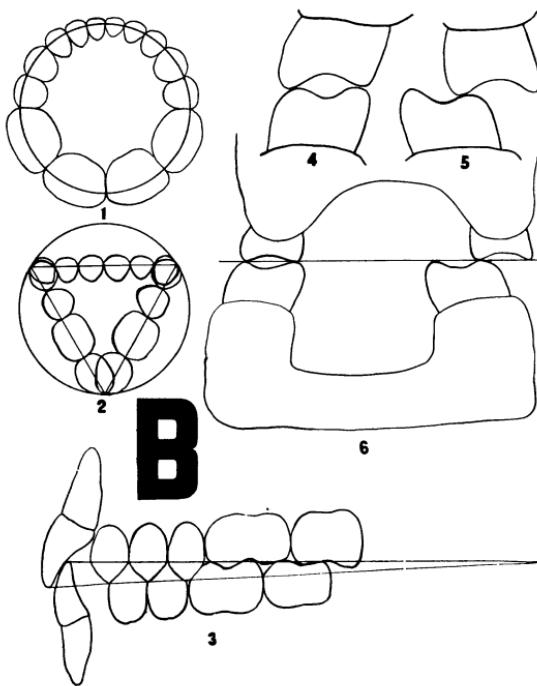
attached. They lend one another strength in that they are positioned in a geometric figure, having the elements of a triangle, circle and square; and this allows that the contact point of each tooth shall

touch its neighbor. The teeth are so arranged in this figure that a strain which falls on any one of them of either half of the superior or inferior dental arch, is communicated to the several teeth on that side of the jaw, thus distributing the strain. Hence each tooth is as independent of its neighbor in its functional character as though the masticating apparatus consisted of but a single superior and two inferior teeth, or vice versa, as Fig. 1 shows. This disposition of the teeth is well illustrated in architecture in the building of brick walls, and is known as "breaking the joints." Fig. 2. In the mouth this arrangement serves the dual purpose of permanently establishing the position of each tooth and assisting most decidedly in breaking food of a brittle character. Fig. 3 represents clearly the inferior half of the mouth, known as the lingual cavity, showing how the tongue hugs the surfaces of the teeth and how the lips and cheeks fold about the opposite surfaces. A wise arrangement in nature admits that mastication can be vigorously prosecuted without molestation of the tongue or cheeks. This happy result is attained in that the inferior teeth extend to the center of the dental figure, while the superior teeth extend to the circumference, as shown in Figs. 4. In conjunction with this idea, I believe artificial teeth should be fashioned as in Fig. 4. The teeth should be ground to yield occlusal surfaces and so shaped that the superior accurately complement the inferior teeth. If constructed as diagramed they will glide over each other more readily, facilitating mastication and assisting in retaining the dental bases.

Figs. 5, 6 and 7 accurately represent the figure which the teeth form in both the superior and inferior maxillary bones. The triangularity of the lower jaw immediately appeals to us; hence if a line is drawn from the center of the right condyle to the same point on the left, and then two lines from these points that will meet at the septum of the inferior incisors, there will have been described a perfect equilateral triangle. The length of these lines will be somewhat more than four inches. You will observe that the human jaws are not so pointed as indicated by both the drawings and theorems of Dr. Bonwill. They are not so short and sharp as he represented them. And if he portrayed the shapes of the jaws contrary to nature, he also applied the wrong theorem and could not hope to attain the normal philosophy of these jaws. I am satisfied that he was in error in his geometric deductions, and although he was a close

student of this subject, I fear he failed to select the composite jaw, and in consequence did not complement the right geometric figure.

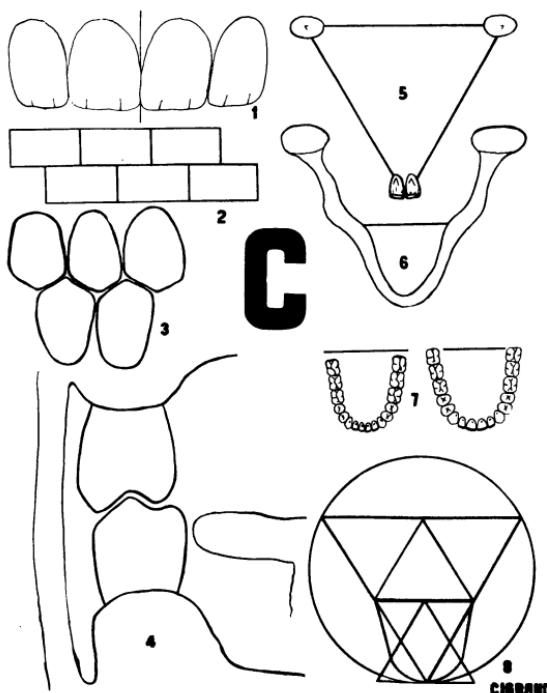
In Fig. 8 I have designed the theorem which meets the requirements of the proposition under consideration. In the first place, we use a circle to facilitate getting a perfect equilateral triangle; since geometry teaches us that a perfect equilateral triangle is produced by joining three lines of equal length within a circle. I next observed that in the anterior portion or half of the triangle the teeth were located; that the base of this sub-triangle marked the position



of the molar teeth. Geometry teaches further, that when two equilateral triangles are brought in apposition with their cones they form the outer surfaces of a square, the center of which describes the arc of a circle. Where the circle meets with the straight line is registered the first inferior bicuspid. It has been taught in the past that the canines were the prominent teeth which marked the point where the circle verged into a line, and consequently we have been at loss to ascertain the geometric figure and proposition.

DIAGRAM D.

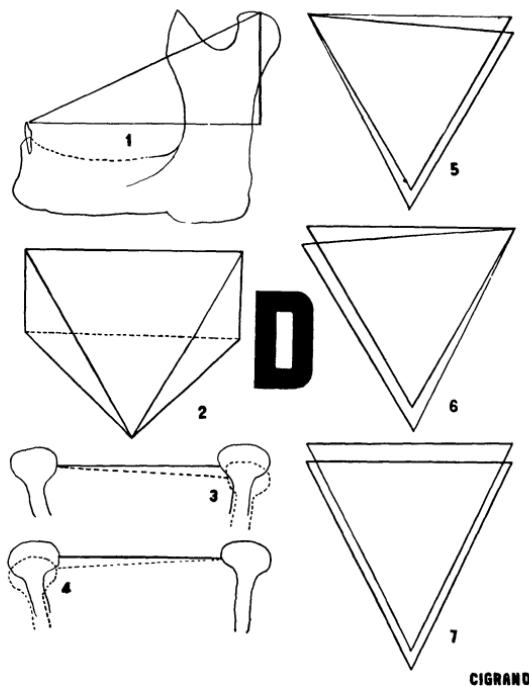
In this diagram I have designated the lateral triangle, which is formed by a line from the condyle forward to the front teeth, then back over the plane of occlusion and thence up to the center of the condyle and the lowest point, is the pivotal point of the jaws. When this imaginary triangle is coupled with the anterior triangle they describe Fig. 1. Another set of triangles is formed while the jaw is in process of mastication. When the lower jaw rotates to the left



the right condyle moves forward and downward, while the left one simply turns on its axis. The reverse is true when the jaw is thrown in the opposite direction, and in consequence imaginary triangles are formed corresponding to the depth of the glenoid fossa and the length of the cusps of the teeth. Figs. 3, 4. This assists in determining the overbite. When the jaw cannot be freely rotated it indicates a predisposition on the part of the patient to live the life of carnivora, meat-eating; while when the jaw can be readily thrown from right to left there is a disposition in the owner to be

herbivorous, grain and vegetable-eating. In the former we observe that the glenoid cavity is deep and in the latter shallow.

Fig. 5 shows the inferior jaw thrown to the right, Fig. 6, moved to the left, and Fig. 7, thrown forward. The triangle being pinioned at either right or left side, and being a perfect unit, all points must swing in the arc of the circle in proportion as they are distant from



the pinion center. If this be true—and I see no error in it—then the cusps in normal mastication must all describe small triangles. Hence, everything seems to indicate that the philosophy of mastication is founded on triangles and not on circles, Figs. 1, 2 and 3. When we more thoroughly understand these principles we can produce prosthetic substitutes capable of rendering service. If we continue to construct our dentures in defiance of these underlying truths, we are not only yielding abortive results, but are disgracing the divinity which enters into the work of our noble calling.

DIAGRAM E.

Another point. The jaw describes another triangle. In opening the mouth the lower jaw falls down, bringing it forward, then bringing it up to cut. Another triangle is formed. You will see here that I have exaggerated the opening of the jaw to show you the principle. I simply allow the jaw to fall, and that is what mastication does. It describes a triangle in masticating (Fig. 3).

The cusps do not form from a straight line, but from a curved line (Fig. 4). The diagrams show that they are not pitched on a straight line. The second bicuspid is absolutely vertical. When a patient stands up straight, all the teeth pitch towards that line. The result is there is a circle described; and it is a circle in proportion to the length of the overbite (Fig. 4). If you have an individual in whom the teeth are smooth and flat, there is no curve, but there is a curve in proportion to the overbite.

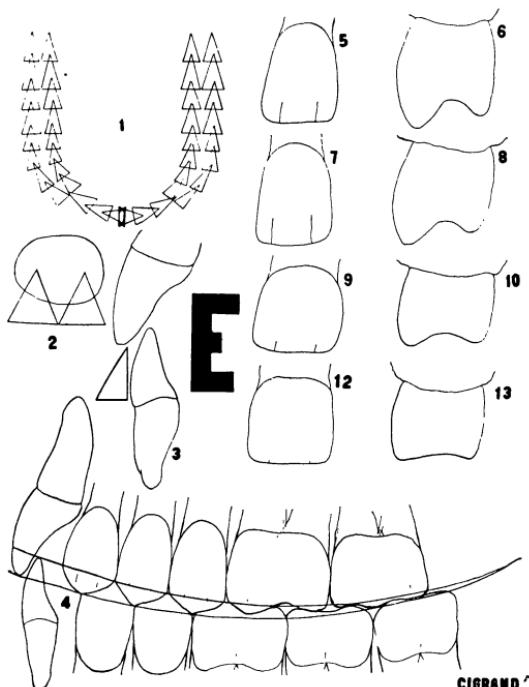
Another point in relation to this matter, which is of interest, is the fact that we as dentists do not observe the principles and the philosophy of mastication, and we do not give sufficient notice to the shade, size and the shape of the teeth. For instance, here I have a diagram of the individual with motive temperament, an individual with strong angular outlines (Figs. 5 and 6), the bony framework giving teeth after this fashion. The bicuspids will develop full cusps. In the individual with a mental temperament, which is more rounding and more symmetrical, the teeth assume a more oval character. The cusps are less prominent, whereas the buccal cusps seem to fade away (Figs. 7 and 8). Here we have an illustration bearing upon the sanguine temperament; the lines of the teeth seem less marked, and the bicuspids again are losing their identity in the way of cusps (Figs. 9 and 10). In the lymphatic temperament we have the width and length of the teeth alike; the bicuspids scarcely show any cusps whatever (Figs. 12 and 13). It is these things that we have yet to solve. These are but the stepping-stones for further light. There is so much to learn along this line, and so much to improve that we are just beginning to obtain some of the light that Dr. Bonwill pointed out for us.

With the ordinary open-and-shut articulator we often produce a splendid case, yet when we attach it in the mouth it requires considerable changing—necessitating the grinding off of porcelain facings and gold cusps, whereas, if we possess an articulator which mimics the jaw, the cases can all be carefully adjusted before attaching them.

The cusps must be so formed as to readily incise, tear and grind the food, since the artificial denture is less stable than the natural one, and the teeth must cut the food with less strain.

The superior and inferior teeth should be pitched toward the lingual cavity, since by this position they resist the tipping tendency of dentures.

We must grind and carve our artificial teeth to meet the requirements of nature, since the dental depots pay little or no attention



to harmonizing or adapting full sets of teeth, other than in general outline and shade. The occlusal surfaces should be ground, as the roughened surfaces assist materially the force of mastication. Artificial teeth in the future will in many particulars be different from what they now are, in shape, shade and manner of attachment, and the dentist who assists in educating the public to see the necessity of having artificial dentures moulded, carved and arranged so as to be in harmony with the Creator's conception, will not only assist in raising this grand department from out of the hands of empirics, but will add laurels to the profession which fosters his existence. The ability to choose teeth and change them to suit the great law of correspondence is an art confined well within the precincts of the science.

(To be continued.)

DENTAL CERAMICS.

By F. Ewing Roach, D. D. S., Professor of Porcelain Art, University of Illinois.

CHAPTER V.

Since the bodies furnished by the different manufacturers vary very materially in fusibility, and likewise the heat produced by the different furnaces, it is impossible to bake by any set rule. The bake, like that of harmonizing the color, can be learned by actual experience and that only. It matters not how expert you may be with a certain body baked continuously in a certain furnace, you cannot take up some strange body and furnace and accomplish good results at first. You must by repeated tests become familiar with your materials and appliances. Ascertain by repeated bakings the exact time required to produce a perfect vitrification of the body you are using. And for this purpose I know of no more simple and positive means than the gold test. By the gold test we mean the placing of a pellet of gold in the furnace with the piece to be baked and continuing the heat a certain length of time after the gold melts. The body to be baked should always be placed in the center of the furnace and the pellet of gold in the same relative position each time. While this may seem to be a trivial matter, it is an important factor in the uniformity of your bake. An overbake, which is always irreparable, may often be the result of a failure to observe this apparently insignificant precaution. The heat being so much more intense at the center of muffle than at either end, and especially near the door, it is obviously important that the position of the body and gold in the furnace be at all times relatively the same. The first and second bakes in large inlays will show very considerable shrinkage, leaving deep fissures, which, unless thoroughly filled when the next layer is placed, will be the source of an imperfect inlay. To facilitate packing body into the fissures place a drop of water in matrix and blow off excess, after which a bit of body may be placed and by a few taps settled into the most remote crevices. Packing a thick paste of body in a dry matrix is very likely to bridge the cracks.

To obtain a homogeneous union of each layer none but the last bake should be carried to a high glaze, and when two grades of body are being used the higher fusing or foundation body should not be carried beyond a biscuit and by extending the time of each consecu-

tive bake a few seconds, the result will be a more complete fusion of the entire mass.

After the first bake and the matrix has been reburnished around the margins, should the inlay be one of considerable size, it is well to place a second layer of foundation body and draw a thin layer of same well up to all margins. This will form a thin film of higher fusing material along the margins and will prevent the enamel layer from drawing away from this point where it is so desirable to have perfect adaptation.

In placing the last layer the body should be built up in excess of the desired contour to allow for shrinkage and all overlapping body should be trimmed off to the margins, otherwise the feather edges thus formed are very liable to break off, when the matrix is being removed and should the break occur outwardly, the margin of the inlay will surely be injured.

After the final bake the inlay should be tried to place in the mouth and observations made as to contour, color, etc., before the matrix is removed. Should the inlay be an approximal one, and by reason of excessive contour require grinding, it is best to do so before matrix is removed, in order that it may be returned to the furnace and the surface glaze restored. If it is found desirable to grind the surface after the matrix is removed, the surface may be very satisfactorily polished with paper disks and oxide of tin polishing paste carried upon an orangewood point in the engine. Grinding will seldom be necessary if the proper care is observed in the work up to this point.

It is always desirable to have the glazed surface on approximal fillings, especially where the contact is with a natural tooth. The self-cleansing surface of a highly glazed porcelain inlay insures a degree of immunity to caries of the approximating tooth, not to be obtained with any other filling material now in use.

In removing the matrix from the inlay, it should be pulled back away from the margins all around and then by grasping with pliers and rolling upon the point it will usually peel off easily. Should any small pieces of the matrix remain attached to the inlay they may be easily removed with an old bur or a fine-pointed instrument.

All overlap feather edge margins must now be trimmed off and this is best done with a small engine stone rotating along with the edge instead of across, as the latter method is more likely to

break the edge, and as the break almost invariably leaves an imperfect margin on the inlay, it should be at all times guarded against.

Of the many means of preparing the inlay for cement attachment, I favor etching with hydrofluoric acid almost exclusively. To accomplish this, the inlay must be covered on all surfaces, except those within the cavity and immersed in the acid for five minutes. After thoroughly washing, it should be dipped in alcohol or chloroform and dried and then it is ready to be cemented to place. The cavity should also be wiped out with alcohol or chloroform and kept thoroughly dry until inlay is cemented to place. With the exception of Fellowship cement, which sets best under water, it will be necessary to maintain dryness for a considerable time, and as a matter of expediency and comfort to the patient, the cement may be protected from moisture by covering with a thin film of melted parafine. Contrary to the common practice, I advocate a good thick mix of cement, as the maximum strength of cement is obtained and a greater resistance to chemical disintegration is assured. The average inlay can be set with as thick a mix of cement as can be used in setting most crowns. There is less tendency for the cement to pack under an inlay, than there is under a well-fitted crown, and if all frail margins of inlays have been removed there need be no fear of crushing it, if considerable force be exerted in forcing it to place.

In approximal cavities, where it is difficult to exert uniform force in the direction desired, then strips of celluloid, such as used in photographic film, will serve admirably. These strips are extremely thin and strong, and their transparency permits a good observation of the inlay all the time, which facilitates in determining when it is home and is always reassuring in this respect.

When the cement has become thoroughly hard and all excess is removed the margins should be critically examined to see if perfect continuity of inlay and cavity margins exists and if the occlusion is right.

As previously mentioned, grinding off the surface of the inlay should be avoided as much as possible, but it is sometimes necessary, and when the stone or disk is to be applied to the margins, there is less liability of slivering the edges if the stone is revolved inlayward instead of toothward, as in the case of finishing a gold filling. After the required grinding is done, the surface should be

polished with fine grit disks and oxide of tin polishing paste with wood points.

Before concluding this, our last article on porcelain inlays, I wish to describe, briefly, a means of making perfect and a poor-fitting inlay. Sometimes, in large inlays, we may find to our sorrow, after the matrix is peeled off, that in spite of everything, a slight warpage has occurred at some point, leaving an unsatisfactory adaptation. Rather than put in a poorly fitted inlay, I would make it over, but in most cases the following method will prove eminently satisfactory and in many instances will yield even more perfect results, than would be possible to obtain otherwise. The initial step is to thoroughly dry the cavity and smear with talcum powder. The inlay having been previously etched on cavity surface, should be thoroughly cleaned and dried. The cavity surface must now be coated with a thin solution of gum tragicanth, and while yet moist a bit of Brewster's XX body mixed thin is placed where needed, and just as it begins to dry place the inlay into the cavity and press it firmly to place. Allow it to remain a few seconds. In the meantime, trim off excess of body just before it is sufficiently dry to crumble, remove the inlay. If properly done, you will have a beautiful sharp impression of the cavity in body, which can be placed in the furnace and baked without danger of changing the form of the original bake and with positive assurance of a fit when finished. This XX body will fuse at the melting point of pure gold just sufficient to make a good union with the inlay and at the same time present a surface very similar to the acid etched surface for attachment of the cement.

To facilitate handling the inlay it can be easily mounted on the end of a toothpick or a blunt instrument with sticky wax.

Note.—My next article will be on gold inlays.

(To be continued.)

OPERATIVE DENTISTRY.

By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,
Chicago College of Dental Surgery, Department of
University of Illinois.

CHAPTER IX.

Preparation of Cavities.

The first step in the preparation of cavities is to remove all decay. The initial effort in this direction is, as a rule, to break down the overhanging enamel. In the smaller cavities this may be easily done with a suitably shaped and sharp bur, but in the larger cavities the different forms of enamel chisels will do the work with greater facility. In performing this part of the operation great care must be used to direct the force of the chisel so that unintentional damage may not be done. As the enamel is a very hard substance, with highly polished surface, it is difficult, with hand pressure, to make the edge of the chisel take hold, and if force is misdirected the point may slip with unpleasant, if not serious results. Such pressure should therefore be guarded, always, by finding in some way a rest for thumb or fingers that will give control to the thrust. A better way, usually, is to place the chisel where desired and tap it gently with a mallet.

Every cavity should be freely opened so that access to its greater depths may not be obstructed. Too many cavities are not properly cleared of decay, and too many fillings imperfectly made, because of the reluctance of the operator to cut away and open up so that a clear and unobstructed vision may be had and a working space secured. It may seem, sometimes, that too much good sound structure is sacrificed in so doing, but conditions governing procedures in the mouth are quite different from what might be done if we could take the tooth out and secure it on our bench, and it is safe to say that the sacrifice of tooth tissue as above advised, to enable us to do more perfect work in the way of repair, is doing our patients better service than to leave structure there that handicaps our efforts and renders the very thing we are operating for—the preservation of the tooth—a doubtful quantity. Far better is it to cut away freely than to make an imperfect repair with the result that decay immediately sets in again and at no distant period of time undermines and breaks down the tissue we should have cut away, and often much more, undoing the work we are supposed to have done faithfully and cor-

rectly. It can hardly be presumed by even a thoughtless person that this advice means a ruthless and haphazard cutting away of good tooth structure merely to accommodate ourselves; for common sense is an essential in the practice of dentistry as in other things. If for instance the cavity to be operated upon is in one of the anterior teeth, it would be nothing short of malpractice to cut away a good sound labial wall to facilitate entrance into deeper parts, while by a little more painstaking effort and possibly more difficult procedure the work may be as perfectly done through the lingual approach, and the labial wall conserved. Conservatism is a commendable trait when all things are taken into consideration, and good judgment directs the course. But it will bear repeating to say that reluctance, not well founded, to open many cavities freely, especially those between bicuspids and molars that should be opened occlusally, is the cause of much imperfect repair.

The foregoing, though not so designated, is to some extent a feature of the much discussed question of "Extension for Prevention," which has its advocates pro and con. The question whether or not to open a cavity freely to be able to see and to do our work correctly seems to me to have but one side to it, and hence is not debatable. Open we must to be able to perform our work. In opening freely we are extending the cavity, and in being able to do our work correctly in consequence, we prevent recurrence of decay. There is much, however, in the broad subject of extension for prevention that every operator must settle for himself, according to his own judgment in each case as it presents. A fast and set rule cannot be adopted. But to determine wisely what should be done, the why and the wherefore of extension, should be thoroughly understood. When extending a proximal cavity of a bicuspid or molar over into the occlusal surface, often through a considerable portion of sound tissue, the reason for so doing is, first to get a free open space to see to work in as has been discussed; next, in going into the occlusal fissure of a bicuspid, for instance, a weak spot, liable to decay in the near future, if not already begun, is taken care of, and in nine cases out of ten, this weak spot—the fissure—will be found defective. Thousands of carefully made fillings in the proximal surfaces of bicuspids have been ruined not long after their insertion by decay penetrating through the occlusal fissure and working in behind the filling. The shape that an operator is able to give these proximal cavities in bicuspids and sometimes in molars is not conducive to the retention of the filling; but by cutting through to the

occlusal fissure and obtaining a lock or anchorage there the filling may be made, with a square seating, to withstand the thrusts of masticatory force that otherwise might dislodge it. At the same time the fissure is filled and is no longer a menace to the axial wall of the proximal cavity. There are thousands of cases where this course of procedure is undoubtedly the most rational way to fill such a tooth. When extension for prevention in this class of cavities is carried on buccally and lingually to get the margins well away from the point of contact, where such margins are more easily kept clean, the greater is the necessity, in fact it is imperative, to extend and anchor occlusally, since the buccal and lingual wall may give no retention at all to the fillings. Understanding the principles of extension for prevention one can adopt them if he thinks proper. There are, however, many instances of proximal decay that has not gone on to the extent that would warrant such an extensive sacrifice of good strong tissue. It may be true that decay will again invade the area around a small filling in such a location, but the small filling may do service more than adequate to the time, trouble and expense of placing it, and its failure at a future day may be calculated upon, and if it should not fail, the disappointment will be of the agreeable kind.

In shaping a cavity to retain a filling and resist the strains of mastication the principles of well seating a filling should be understood and well fixed in mind. The base of every filling that is to withstand the thrusts of mastication should be not rounded but square—or flat. It has been tested beyond question or doubt that a filling with rounded base is much easier dislodged than one with a square. This is a question of physics and has been settled in favor of the square base so often it should never be questioned. Of course the square base is much more difficult to prepare, especially with burs, than a rounded one, and hence the tendency to leave it rounded. As a rule when decay has been removed the shape of a cavity is rounded rather than square, and the squaring is done with excavators and chisels. Sometimes wheel and inverted cones burs may be used to advantage, but inverted cones are rather dangerous things to use in cavities that run in close proximity to the pulp. Many an exposure of a pulp has been unintentionally made with inverted cone. The direction of its cutting is in inverse ratio to the cutting of a round bur.

Cavity preparation is of first importance in the operation of filling teeth, for if that is slighted and improperly done all else fails; the finest fillings become nil.

A further discussion of the subject will continue in the next number.
(To be continued.)

DENTAL THERAPEUTICS.

By Geo. W. Cook, B. S., D. D. S.

Professor of Bacteriology and Pathology, University of Illinois.

CHAPTER IX.

In the discussion of devitalization of the pulp and its removal by the use of arsenious acids and the method known as pressure anaesthesia, we have dealt entirely with the pulp as a living substance, capable of carrying on the functional activities of cell life in what is presumably to be in a state of health. In the majority of instances, as has already been said, there is that tendency of the odontoblastic cells of reverting back to their original function in the process of development of the dentine, which has a more or less tendency to fill a portion or most all the pulp chambers with an inorganic substance, or at least the larger portion of the secondary deposits is inorganic salt.

As caries approach the pulp it does so through the activities of certain forms of unicellular organisms. Many of these low forms apparently have a wonderful and most unique action in the presence of certain forms of nutritive substance, and are capable of breaking up and extracting certain nutrition for their own body from almost anything that they are permitted to become directly in contact with. Certain forms of these organisms, as we know, are able to extract their nutrition from the air, or must have air and moisture in order that their functional activity may be carried on by a perfectly physiological process. Pasteur almost revolutionized the theories that were held concerning fermentation, the theories that had previously been held concerning certain functional processes that were carried on by these low forms of vegetable life; for out of the process of fermentation these bacteria must obtain their nutrition.

In speaking of the physiology of cell nutrition it differs but little whether it be a unicellular or a multicellular organization, either or both must receive nutrition in order that the molecular equilibrium of the proteid molecule can be maintained in a perfectly physiological way. It must be able to obtain carbon, hydrogen, nitrogen, sulphur and oxygen (C, H, N, S, O). Thus we know that these elements are essential to the proteid molecule which is the basic element of protoplasmic substance. In order that bacteria may carry on their life processes in a perfectly physiological manner, they must extract

these substances from their environments, and in so doing they must have the ability many times to change their activity so that they are able to obtain their nutrition from a number of various sources.

Without entering into a discussion as to how they break down the enamel and gain admission into the dentine of the tooth, where they come in more direct contact with a protoplasmic substance that is endowed with possibly a greater physical and chemical activity than they have previously been accustomed to gaining their nutrition from, then they have necessarily to an extent been forced to change their mode of living, and as a consequence they have changed the products of their own body excretion. As they approach the pulp their action on that organ becomes more and more apparent, and the physiological activities of the pulp becomes more active. In the attempt to defend itself against the approach of the invading organism and with a tendency of a portion of the cells to take up certain of these waste products that are excreted from bacteria, they then take on another form of activity, which if continued for any length of time will cause death of the entire mass of the pulp. This in some instances may be due to a process of poisoning of the protoplasmia of the pulp tissue, while in other instances it may produce death through the increased activity of the cells of the pulp tissue. In this last instance we have death by over-stimulation of the pulp, while in the first instance we have the simple poisoning of the protoplasmia of the pulp by a toxin or some other product from the activity of the micro-organism. In such cases we have death of the pulp without the hyperaemic and inflamed condition that is so frequently met with in which there is great pain and hypersensitive condition, that the dentist is so frequently called upon to treat. This condition seems to be most common in that class of cases where the cavity is exposed in a way that the bacteria therein contained is free to have communication with the oxygen of the air, while in those cases where the death of the pulp takes place in the more inaccessible places to the atmosphere, or in other words, where oxygen of the air is not so accessible and where the bacteria must obtain their oxygen from their immediate environments; or in other words, extract the oxygen from the tissue in which they are living or obtain it from the moisture in which they are constantly exposed to in those inaccessible cavities. This condition may go on until certain of these forms of bacteria assume the ability to carry on the life process under a strictly anaerobic condition.

Those teeth that are frequently presented to the dentist to be operated upon, the patient not having had any pain, or if any, very slight; the dentist makes a thorough examination; the pulp is found to be dead, and upon opening into the pulp chamber he is confronted with the fact that there is no pulp tissue in the tooth. It is quite evident the tooth has lost its pulp through the action of an agent that is purely and strictly a protoplasmic poison, and is a slow and gradual process because of either the weakened conditions of the toxins or through the slow development of these toxins, due to the inability of the bacteria to readily adapt themselves to this new mode of life, which is that of extracting oxygen from purely organic sources. This condition will frequently happen in teeth that have been filled where an area of dentine has been left containing micro-organisms. Previous to the insertion of the filling these organisms have been living under strictly aerobic conditions, that is, they were able to obtain their oxygen from the atmosphere or from the food or moisture that was constantly bathing the cavity previous to the insertion of the filling. But as soon as this source of oxygen was cut off the decalcifying process may have ceased, owing to the fact that their environing conditions were changed and their activity no longer resulted in an acid condition, but at once established the ability to form a toxin which was a protoplasmic poison, and acted only upon the protoplasmia that was endowed with irritability and which was capable of taking up this poisonous product which was detrimental to its own life function.

Many times this change from aerobic to anaerobic activity is not a very rapid one, and a considerable time may elapse from the time of the changing of the environments until the manifestations of discomfort is noticed on the part of the patient, or these bacteria may pass into what is known as the resting stage or in the stage where spores are formed, a condition which has been known to exist for nine years in the case of the anthrax spore.

Some authors would lead us to believe that the anaerobiosis and aerobiosis were fixed and rigid laws, the bounds of which neither of these species could pass under any circumstances. But such is not the case, they are simply the result of adaptation of certain forms of these organisms adapting themselves to the energetical activities of nutrition, which are looked upon as facultative aerobiosis and facultative anaerobiosis.

It has been observed that substance poor in nutritive value will in the presence of air yield more energy through an oxidation process than the process of splitting will yield from substance that is richly endowed in nutritional value. Therefore, it is fair to presume that the activity of these organisms in most instances is very much more energetic where they are in the presence of the oxygen of the atmosphere. This may to an extent account for the long period that elapsed in the destruction of the vital function of the pulp of the tooth, from the time that the tooth has been filled or in some instances where the tooth has ceased to an extent in its process of decay. This is due in some instances to the environments in which these organisms have been placed. The solution or saliva in which they live must of necessity get an amount which they utilize in a nutritional way; but deep down into the dentine there may be deposited bacteria or their spores, and as frequently happens the death of the pulp will be brought about long after the process of decay has been arrested, or we may have deposited through the action of the bacteria in the dentine a substance which they are no longer able to act upon, and in this way the carious process be arrested for an indefinite period.

The biology as applied to the action of bacteria and their activities in the oral cavity is a question that is by no means settled. In other phases of bacteriology we find some of these organisms that are capable of oxidizing ammonium to nitric acid, and in the absence of oxygen reduce nitric acid to ammonia. Therefore, when we observe such a wonderful physiological process as herein mentioned we are at a loss to explain many of the phenomena that exist in the processes so frequently observed in the oral cavity.

This process of anaerobiosis has a far greater affect in pathological lesions, and especially those of the teeth, than there is any note made of at the present time.

Those micro-organisms that cause suppuration and other pathological lesions do so almost entirely in the absence of the oxygen of the atmosphere. It has been observed that those germs that are capable of bringing about certain fermentation and producing poisonous toxin, retain this physiological function much longer when they are kept under anaerobic conditions. Fajans and Hueppe showed that the cholera cultures retained their virulent properties for months when kept under anaerobic condition, while those that were grown under aerobic conditions became non-pathogenic in a very short period in comparison with those that were kept free from the oxygen of the air.

(To be continued.)

"F. D. I." INTERNATIONAL DENTAL FEDERATION.

(International Grouping of Dental Interests.)

(Circular to the Presidents of National Dental Societies.)

Office of the Secretary General,
45 Rue de la Tour d'Auvergne,

Paris, September 18, 1903.

Dear Sir and Honored Confrere: The International Dental Federation at its meeting held in Stockholm in August, 1902, in accordance with the powers that had been conferred upon it, decided that the Fourth International Dental Congress be held in St. Louis, Missouri, in August, 1904, at the time of the holding of the St. Louis Universal Exposition. The decision thus reached followed the receipt of invitations regularly addressed to the F. D. I. by the National Dental Association, the Odontological Society of St. Joseph, the National Association of Dental Examiners, the Odontographic Society of Missouri and Western Kansas, the Society of Dental Science of St. Louis, the committee appointed by the Missouri State Dental Association, the Dental Society of St. Louis, the city of St. Louis, the government of the state of Missouri and the authorities of the Louisiana Purchase Exposition. This decision was confirmed at the session of the F. D. I. held in Madrid in April, 1903.

The officers of the executive council of the F. D. I., in accord with the authorities of the exposition and the committee of organization of the congress, have determined the conditions under which the federation will take part in the organization of said congress, and we are now officially advised that the Fourth International Dental Congress will be held in the city of St. Louis in 1904, from August 29 to September 3, inclusive.

The purpose of this circular is to inform you that the International Dental Federation has decided to lend its entire support to the organizers of the Fourth International Dental Congress, and, in view of assuring the perfect success of the congress, we therefore request you to appeal to the several dental societies in your country to take part in the said Fourth International Dental Congress.

It seems unnecessary to call your attention to the importance of all dental societies the world over being appropriately represented at this gathering, both scientifically and professionally. We think it, however, desirable to call attention to matters which the delegates of the different federations and national societies will be called upon to discuss with reference to the organization of the second term of the International Dental Federation—that which will be comprised, namely, in the period between the fourth and the fifth international dental congresses.

During the first working period of the F. D. I., comprised between the Third International Dental Congress held in Paris in 1900 and that of St. Louis to be held in 1904, the members of the executive council of the F. D. I. who were appointed in Paris by your representatives have fulfilled to the best of their abilities the mission with which they had been entrusted by the members of the Third International Dental Congress, of which you may have been able to judge from perusal of the printed transactions of its different meetings.

They have assured the holding of a Fourth International Dental Congress (resolution No. 13).

They have created an International Commission of Education, which presented a program of international dental education at the sessions held in London, Cambridge, Stockholm and Madrid (resolution No. 16).

The International Commission of Dental Hygiene, organized at the Cambridge session, will at the St. Louis meeting complete the program of international dental hygiene to be recommended to the public authorities.

Other projects of interest to the evolution of dentistry—such, for instance, as the publication of an international dental review—are being carefully studied in view of future realization. Reports have been prepared and presented on the federation of schools; and other propositions are now under consideration, such as the creation of a universal nomenclature, and also of a code of ethics to be universally accepted. The execution of these projects will fall on our successors in the subsequent terms of the F. D. I.

It will be the duty of the delegates to the St. Louis Congress to ratify the constitution of the F. D. I., to introduce such amendments as may be necessary, to appoint the members that will represent the different countries in the executive council, and to decide on the program for the second period of the F. D. I.

Appreciating the importance of the great international gathering to be held in St. Louis in August, 1904, we are convinced that you will be able to induce the national dental association and the other dental societies of your country to take part in the congress by sending delegates and by contributing scientific papers.

We request that this circular be published in all the dental journals of your country.

Please accept, dear sir and confrere, the assurances of our fraternal sentiments.

DR. CH. GODON,
President:

DR. E. SAUVEZ,
Secretary General.

BOOK REVIEW

Principles and Practice of Crowning Teeth, by Hart J. Goslee, D.D. S. Published by the Consolidated Dental Manufacturing Company of New York and London.

The years of experience of Prof. Goslee of the prosthetic department of the Chicago College of Dental Surgery have contributed essentially to the merit of a work on the practical side of prosthetic procedures as related to crown and incidentally to bridge work. The work is embellished with upwards of 500 illustrations, and gives evidence of painstaking, original work. The publishers are to be congratulated in having this recent and excellent work on their book list. The author is to be praised for having recognized the importance of illustrations and diagrams. They are most essential when it is the purpose to elucidate relative to material things; illustrations admit of abridging the reading matter, and in this age of rapid thought they serve to aid the power of both preception and conception. If it is true that upwards of 80 per cent of what we learn is taught us by the optic nerve it demonstrates the necessity for greater interest in this, the art side of text-books. There are literary critics who share in the belief that pictures detract from the truly scientific writing and there are leading journals which never "resort to an engraving," since their writers are capable of giving perfect word pictures. In short, there are many authors who prohibit the publisher from inserting illustrations, since their use would be acknowledgment of inferior literary qualification. This may have been the thought in the days of Addison and Steele, but in these time saving days instead of wasting four pages describing the lady's hat one-tenth page will portray the headgear and the wearer.

Illustrations serve to abbreviate the subject matter and aid in accurately registering the object in the residual portion of the memory. In fact, in all works which deal with material things, and more especially with mechanics and its varied devices, principle and apparatus, illustrations are indispensable. Hence the work of Dr. Goslee is deserving of comment, since its precise descriptive matter is embellished with accurate diagrams, and renders in the most concise manner a most complete idea of the constructions and mechanisms of the innumerable methods which make up our present

systems of dental restorations as they pertain to the art and science of crowning teeth.

The work contains upwards of 250 figures or diagrams, though in some instances the illustrations lack size correspondence. This is evidently the engraver's error, since few of the dental artists fully appreciate the minute details entering into size, shape or situation. This irregularity does not in the least detract from the value of this splendid work, but emphasizes the unfamiliarity of the engravers with dental minutia.

The book deals with the best, or, rather, the most approved, methods as suggested or improved by the dental practitioners, including a comprehensive resume of the evolution of the great variety of crowns, their application and repair. The necessity of greater care in construction of the anchors receives a large share of the reading matter, and the author was modest enough to point out the possible failures as well as methods of repair; and this latter feature receives its deserving consideration. Dr. Goslee purposely avoids the designer's descriptive language and wisely says in his preface: "The various methods and technique of modern procedures are presented and commented upon from an original and unbiased viewpoint," because "their merits will be less likely to be overestimated than if presented in the language of the original advocate, because of the enthusiasm which would thus naturally tincture the claims made for them." In short the work is an encyclopædia of meritorious methods employed in dental prosthesis as pertains to the department of crown work.

It would have added considerable to the value of the work to have given the references where the designer's ideas were published in full. Not infrequently the practitioner would have possibly felt the need of a more lengthy and descriptive article, thus admitting of acquaintance with the basic and succeeding steps. It would be an excellent idea if our dental works contained the bibliography which complemented the work; this would afford greater opportunity for research and stimulate the spirit of investigation.

To accord the book the proper consideration it would be due it to mention the many excellent ideas advanced, but space forbids this, though the advice given under each of the fifteen chapters gives evidence of a trained and experienced mechanic—and the term mechanic as employed in this connection must be understood in its broadest or art latitude.

B. J. C.

PROCEEDINGS OF SOCIETIES

PROCEEDINGS OF THE NORTHERN INDIANA DENTAL SOCIETY.

The fifteenth annual meeting of the Northern Indiana Dental Society convened in Maccabee Hall, Wabash, Indiana, at 10:30 a. m., Tuesday, Sept. 15, 1903.

Dr. M. A. Payne, president of the society, delivered the annual address, which follows.—

PRESIDENT'S ADDRESS DELIVERED AT THE ANNUAL MEETING OF THE NORTHERN INDIANA DENTAL SOCIETY AT WABASH, INDIANA, SEPT. 15, 1903.

By M. A. Payne, D. D. S.

Gentlemen of Northern Indiana and Visitors:—It affords me great pleasure to welcome you this morning to this the fifteenth annual meeting of the Northern Indiana Dental Society, and to our city of Wabash. I welcome you to Wabash firstly because it is very gratifying to us to have a gathering of the dental profession in our city, and secondly because we are proud of the city to which I extend you welcome. A city of factories is Wabash, but combined with her manufacturing interests are large mercantile interests; add to these advantages splendid trolley and railroad accommodations, natural and acetylene gas supply, well equipped electric light plant, abundant supply of pure and wholesome water, miles of paved streets, and then if you will familiarize yourself with our fine churches, schools, library, literary and social clubs, numerous secret organizations and many other moral environments you will understand why Wabash is styled "Queen of the Wabash Valley." Now as to the Northern Indiana Society I have naught but gratitude to you for the various honors bestowed upon me, and I hope the meetings will continue to increase in popularity and beneficial results. As a great many of you no doubt are not thoroughly conversant with the policy under which the Northern Indiana Society conducts its meetings, I will briefly review some history and facts concerning the same. The society was organized in the office of Dr. J. E. Waugh

at Ft. Wayne, May 1st, 1889, and elected Dr. J. M. Teal of Kendallville, president; T. A. Goodwin of Warsaw, vice-president; J. E. Waugh of Fort Wayne, secretary. For a few years meetings were held in dental offices at various places throughout Northern Indiana. The presidents to serve the society in the order of election were as follows: J. M. Teal, Kendallville; B. P. McDonald, Goshen; E. J. Church, Laporte; J. E. Waugh, Ft. Wayne; A. Gants, Ligonier; S. M. Cummins, Elkhart; S. B. Brown, deceased, Ft. Wayne; J. F. Werner, Elkhart; C. G. Keehn, Ligonier; T. A. Goodwin, Warsaw; W. O. Vallette, Goshen; F. G. Conklin, South Bend. The society held semi-annual meetings for a short time and has met at various times in the following places: Ft. Wayne, Rome City, Warsaw, Plymouth, Elkhart, South Bend, Laporte, Kendallville, Benton Harbor, Michigan; Elkhart, Warsaw, St. Joseph, Michigan, and Goshen. At the latter five places meetings have been held in connection with the South Western Michigan Society. The Northern Indiana Society was organized as an auxiliary to the state association. It, however, is a more liberal organization than the mother society in some particulars. It does not ask you to comply with a code of ethics, but invites the dental profession at large to participate in the meetings, granting one and all alike unrestricted privileges in the proceedings. The expenses are defrayed by donations by the dentists and exhibitors. Now, gentlemen, the program as you have discovered is a good one, also a goodly number of exhibitors are present, and I hope you will all feel free to take part in any direction you may desire, and if possible derive enough benefit to repay you for your brief suspension of office routine. I will take this opportunity to express the gratitude of the officers of the society to the essayists and clinitians from the adjoining states, also to those in as well as out of the jurisdiction of the society, for their contribution to the program. As some of you know it is a matter of considerable effort to arrange a program and those who consent to contribute have the everlasting gratitude of the officers. As to you who live in Northern Indiana I hope that in the future you will all take an interest in the welfare of the Northern Indiana Society, and if at any time you can contribute to the papers, clinics or discussions, you would do so thereby benefiting others as well as possibly gaining some inspiration for yourselves. Gentlemen, I thank you.

Wabash, Ind.

AFTERNOON SESSION.

A paper was then read by Dr. M. A. Mason of Fort Wayne. Discussion opened by Dr. Hunt of Indianapolis. Dr. Morrison of Connersville also discussed the paper.

The president announced the paper of Dr. L. A. Salisbury of Crown Point, which follows.—

IDEALISM.

By L. A. Salisbury, Crown Point, Ind.

Mr. President and Members of the N. I. D. S.: It is unnecessary for me to state how highly honored I feel at being before you to-day and having the pleasure of reading this paper. I feel my incapacity deeply, but hope you may, some of you agree with me in my deductions, before commencing I wish to give due credit to articles in *The Cosmos*, *Review*, *Digest*, *Success* and other magazines, for the help they have been to me in writing this paper.

*Read before the Northern Indiana Dental Meeting at Wabash, Indiana, Sept. 15-16, 1903.

The ideal doctor of dental surgery is more common, I am convinced, than would occur to you at first thought, although the condition of perfection, or as near perfection as can be obtained by mortal man, is far from being universal. The methods in vogue a few years ago are gradually giving way to better ones, changes are taking place in every branch, also the college course is being lengthened and the requirements of admission being made more stringent, which will tend to introduce into our ranks, not a better, as a whole, class of students, but a better average of men, competent to take up the study of dentistry and carry it to a successful finish, and the fewer failures we have both in college and in active practice will certainly tend to advance our calling several degrees on the road to the ideal. Although a great deal of opposition has been aroused over lengthening the college course, it seems to me that the proposition is correct. Certainly in studying a profession with as many complex side degrees, as it were, of ours, the more time spent in mastering it will be conducive of greater success later and the greater success we enjoy will help us in attaining the ideal.

A young man nowadays who anticipates studying law does not usually enter law school immediately after graduating from high school, but instead enters a university and graduates from there in four years and then takes his law course of three or four years. He

is then ready to take up the practice of his profession, giving four years in high school, four years in college and four years in law school, in all twelve years in preparing himself. Let us look at another side, the great majority of young men intending to study dentistry, very seldom have more than two years in high school, some none, instead of taking a university course in a preparatory, he enters dental college, and it is only lately that the entrance examination of most of the colleges were anything but a farce. In four years now, three years before under the old plan, he graduates and is ready to practice, how much better for him, he does not realize it then but will later, it would have been if he had enjoyed a few years of higher education, before taking the dental course. I am speaking from experience, as I am one of the unfortunate ones who did not enjoy a university course, and many are the times I have regretted it. Of course there are two sides to all questions; finances are sometimes rather constricted, as they were in my case, but where there is a will there is always a way.

By all means, give the young man a college training.

The ideal dental surgeon must be a man, broad minded, clear headed, scrupulously clean, both morally and physically, sympathetic at all times, careful, painstaking, willing to give his best efforts to all intrusted to his care, remembering at all times that his calling is an honorable and noble one. He must have an office fitted up just as nicely as his finances will allow; a little furniture will do, but it must be good and in good taste, and when he has it he must see that it is clean, not sometimes, but invariably. Let him get into the habit of keeping his reception room neat and attractive; the habit will grow and in a short time he will not be aware of doing anything extra. He will keep it in that condition without thinking of it. It will, in other words, become second nature to him. This works both ways, if he starts out by slighting the condition of his office, and before he knows it his office is fit only for undesirable people to sit in, and then he may be sure his patronage will consist principally of undesirable people. He must keep up-to-date magazines on his table, not some two or three months old, or those reading them will come to the conclusion that he is not keeping abreast of the times.

He must take an interest in the civic affairs of his community, help nominate and elect good men to office. The primaries are the main thing; he must attend the primaries, get into the organization,

because organization counts; must not stand back and think he has not the time; he must take it. He should also attend some church, not necessarily belong, but go; he will derive a great deal of good himself and his example will be of benefit possibly to others. He must labor in his office six days, but rest the seventh; also do just as little night work as possible, as surely in the long run his health, which is all-important, will suffer. Eight or nine hours a day is enough time to give to the office. Another thing, when he leaves at night, leave entirely; he should not carry in his mind any thought of operations on the morrow; he should think about those things when in his office; when away, think of other things; in that way, rest himself. When the next day comes he will be fresh and in better condition to master the difficulties as they arise. Many a case of nervous prostration, if not all of them, have been brought on by too close confinement to work and continually worrying about failures, and we all have them.

The ideal dentist must be charitable to a large degree—charitable to every one, but particularly so to his brother dentist. Let me make a plea for less criticism of the other man's operations and methods, always remembering that every man is largely a victim of circumstances and environment, no matter what the condition of the man is; if he is endeavoring to better himself and is honest in his endeavors, he should be helped by kind words and friendly deeds. He will some day hear of them and appreciate the kindness that prompted them. I am sure you will agree with me that the following picture I will attempt to draw is true. What dentist has not a good many times been forced to operate on either a child or woman over whom it seems the slightest control is impossible? He works along slowly, feeling his way, as it were, educating the patient a little, doing the best possible under the circumstances. When he is finished he knows his work is not perfect or a thing of beauty. He is fatigued, nervous and worn out. The only thing he can look upon with pleasure is that anything better could not be done at that time. In a year possibly some other man may be called upon to examine the work; he sees that it is far from being as it should be, but, my friends, be charitable and broad-minded; put yourself in the place of the first operator and hold your words of censure; rather praise the other man. I feel deeply about this important matter. Patients are so prone to find fault; they do not understand, but you do. "*Do not be a knocker.*"

Do unto others as you would that others should do unto you is a safe motto to go by, and keep that forever before you. Right here I want to refer you to Dr. C. A. Van Duzee's paper entitled "Our Professional Future," published in *Dental Review* of August, 1903. It is well worth reading by every one here.

The ideal dentist must be a man versed in prosthesis, a very important branch and one that should not be put aside. He must make a study of every temperament, so that the different peculiarities of each would be used in constructing dentures, as every case needs different usage. Teeth that would be correct for the lymphatic temperament should not be used for the motor or vital. Dr. Evans of Washington, an authority on prosthesis, says that esthetic mechanical skill must be born in a man. That is largely true, but I believe that to a great extent esthetic mechanical skill can be acquired by study, labor and attention to detail. Prosthetic work should very seldom be intrusted to assistants or sent to laboratories. In this connection let me suggest that you read "Occlusion in Prosthesis," by Dr. C. F. Howell, published in *Dental Digest* of July of the current year. Dr. Hinshaw read a very fine paper at the Indiana state meeting this summer on the subject.

The ideal operator must be able to immediately diagnose the different stages of interstitial gingivitis, so-called pyorrhœa alveolaris, at sight; must be able to not only help the sufferer, but cure all but the most advanced cases. His instrumentation for this disagreeable disease must be extensive and his treatment vary for the different stages; must also be conversant with changes of diet and massage, which is very important in this condition. (I have been engaged for several years in compiling some records and statistics from actual experience with this disease, which I hope in the near future to present to you, which I am sure will prove interesting.)

The porcelain wave is now at its height, and when it recedes there will be considerable wreckage remaining, I am afraid, but the ideal dentist must be capable of inserting perfect porcelain inlays in their indicated cavities. In cavities in which they are practical there is nothing more esthetic or, I believe, more durable, but sufficient bulk of porcelain must be obtained to have the requisite strength. I do not believe in the cemented under pressure theory, of two comparatively flat surfaces, but believe there must be self-retentive cavity formation or pins in order to obtain anything like permanency.

Our ideal man must also be able to construct porcelain bridge work in different ways, in some cases use the saddle. There is nothing more cleanly than a perfect-fitting saddle bridge.

This is an assertion that no doubt will bring a good many dissenting shakes of the head, but I believe it is correct.

As regards fees, of course every man is a power unto himself, but it has been my experience that he may control his fees, regardless of what his neighbor is getting. Because the man on the corner is only getting five and six dollars for crowns is no reason why you cannot command more.

It is a mistaken idea that dentists in a certain locality must all meet the lowest prices. The ideal dentist must do better work than the other man and so charge accordingly.

Let him do his best and regulate his fees on that basis. He need not fear the man who persists in doing cheap work.

This applies to young men who are just starting, and I am satisfied will prove to be the fact. As regards business methods, he must be prompt in paying his accounts and as prompt in collecting.

Prompt payment of bills is a business axiom that is based on the best business methods. The ideal professional man should be married. Of inestimable value is the help and advice of a good wife.

It is my privilege to say to you that if I have had any little share of success it is due in a large extent to the aid and assistance, in more ways than one, of my wife.

The ideal man should raise a family while young. It is a lamentable fact that seemingly the higher position men hold in life the smaller his family. The educated man and woman should certainly reproduce themselves.

It is their duty to themselves and their country to bring into the world healthy and happy children, for they are a comfort and a joy. The ideal man should use his leisure to the best advantage. His unoccupied hours are of great worth if properly used. Let him enlarge his fund of general knowledge.

He should not allow himself to grow old and remain ignorant.

He should read good literature, observe nature and improve his mind. He should be courteous; the habit of courtesy is of commercial value. Last, but not least, let him save his money.

Discussion opened by Dr. F. M. Boyer of Logansport. The paper was also discussed by Dr. J. R. White of Warsaw and Dr. M. W. Strauss of Huntington, Dr. Hunt and Dr. Shaffer.

METHODS OF REMOVING PULPS FROM TEETH AND THE SUBSEQUENT TREATMENT—WITH REFER- ENCE TO PRESERVING THE NATURAL COLOR.

By J. P. Buckley, Ph. G., D. D. S., Chicago.*

In the removal of pulps from teeth and the subsequent treatment, there is at least one very important factor to be considered other than those of asepsis, and the thorough filling of the root canal or canals, and that is the preservation of the natural color.

This applies, of course, to the treatment of those teeth, the crowns of which we intend to save by filling; and especially is it desirable to obtain this end since the advent and more general use of porcelain and gold inlays; for by these means the crowns of many teeth are saved which were formerly sacrificed and replaced by artificial ones.

Every conscientious dentist is often confronted by conditions of the dental pulp wherein it is difficult to decide which would be the best course to pursue—to try and save the pulp or to remove it and properly fill the root canal or canals. How often, when judgment dictates the latter method, and you suggest to the patient that the pulp had better be removed, have you been asked the question: "Why doctor, don't a tooth always darken after the pulp has been removed?" You think of your past experience and perhaps are forced to answer "Well, yes, they usually do," and then, contrary to your best judgment you attempt to cap the pulp, if exposed; or if not exposed, some of the decalcified dentine, saturated with the poisonous by-products of bacteria is permitted to remain and sterilizing it as best you can, you put in a base of cement and fill the cavity, only to find in a year or perhaps less, that the pulp has been unable to resist the baneful influence of these ptomaines, and that it has died, decomposed and caused the crown to darken—the very thing which you tried so hard to avoid.

Like every practitioner who has been in active practice for a few years, I have had this experience; and as a result I have finally come to the conclusion that it would be better practice to try and adopt some method of treating pulpless teeth by which the color could and would be preserved, than to obtain the former result, for a few months only by attempting to save this organ. Now, I do not want to give the impression that I favor the indiscriminate destruction of pulps—far from it, but I do desire to say that with our knowledge

*Read before the Northern Indiana Dental Meeting at Wabash, Indiana, Sept. 16-17, 1903.

of pathology, bacteriology, therapeutics and antiseptic surgery, and with our favorable experience with root-canal filling materials, we should no longer hesitate to remove the pulps from teeth when their vitality would be jeopardized by the possible presence of bacteria, or their alkaloidal products, or by the close proximity of the filling material itself.

I can conceive of only one condition where we are justified in capping the pulp and that is in the mouth of a young patient where we suspect the root has not been fully developed. In such a case it is our plain duty to attempt to preserve this organ if only for a year; but the operation, and the object for so doing should be explained to the parent or guardian with the instruction that the patient must return at once in case of subsequent trouble. In older patients, I do not think it good practice to try and save the pulp where the caries has penetrated deeply, especially if the tooth has ached for any great length of time. Many patients have been made to suffer unnecessarily because large metallic fillings were inserted in too close proximity to the pulp; and many conscientious dentists have performed these operations, as previously mentioned, simply because their experience taught them that the removal of the pulp invariably caused discoloration. Now why should a tooth change in color because the pulp has been removed? Is this physical property dependent upon the vitality and life of the pulp tissue? Surely not! The color of the tooth depends upon the array of colors in the dentin, which are reflected through the nearly colorless and transparent enamel. All will admit that occasionally you have been fortunate enough to remove a pulp and retain the normal color of the tooth. It was this fact that led me to investigate the usual methods of treating pulpless teeth and to conclude that if a tooth discolors after the pulp has been removed and the root-canal or canals filled, there has been carelessness on the part of the operator in performing the operation.

That we may ascertain the possible cause of this discoloration, let us review briefly the general methods of devitalizing and the subsequent treatment of these cases. It will be well to keep in mind the pathology of this pulp tissue which has become a source of trouble to the individual. Usually caries has been progressing until the micro-organisms, or their poisonous by-products, have produced irritation. To irritate a tissue or organ means to stimulate and over-

stimulation of a part soon produces hyperemia, followed by certain textural changes, characteristic of inflammation. I would have you remember then that in these pulps to be removed there is an abnormal amount of blood, an excess of vital action, or greatly increased functional activities. In most cases this disturbance of the pulp tissue has caused, at least, a hyperemic condition of the tissue surrounding the apical end of these roots.

Generally an attempt is made to allay the pain for at least twenty-four hours, when some preparation of arsenious oxide is applied and allowed to remain from two to four days. The arsenical treatment is then removed and the pulp-chamber opened, which usually produces slight hemorrhage. The cavity is now flooded with dialysed iron; then without any especial care being taken to remove all traces of the dialysed iron or blood, which contains this metal, tannic acid, in some form, is sealed in the cavity for the purpose of constringing the tissue. After a week or ten days, this dressing is removed and it will be noticed that the pulp tissue is dark in appearance. You also notice—would you observe carefully—that the dentin reflects colors through the enamel, several shades darker than the adjacent teeth. This method of treating teeth is, in my judgment, faulty. I believe more teeth have been hopelessly discolored in this manner than from any other one cause. Many discolored teeth can be successfully bleached; but those discolored from tannic acid and iron are almost impossible to bleach satisfactorily, because they are stained by iron tannate, one of the most insoluble and, therefore, in this case, indestructible, substances known to chemistry. Tannic acid is one of our best remedial agents, but like many other valuable drugs, it has often been used where it should not have been. But I imagine some of you will say that you have long since discarded this method of devitalizing and are using the later methods of removing pulps by pressure anesthesia, yet these teeth usually darken. I welcome pressure anesthesia and am glad to know that it is gradually superseding the older method; but there are certain cases, however, where, for want of time, or because of inaccessible cavities, etc., we deem it best to apply arsenic. When this method is followed, tannic acid should *not* be used and every trace of the dialysed iron, if used at all, should be removed with alcohol, *before attempting the removal of the pulp.*

To those of you who take pride in removing pulps and preserving the color of the teeth, I would suggest that no better method can be adopted for the treatment of molars and many bicuspids than that recently presented to the profession by Dr. A. W. Harlan of Chicago, where he advocates digesting the pulp tissue, after devitalization, by means of a vegetable ferment, papain, which is obtained from the bark of the unripe fruit of the pawpaw tree.

In an article read before the St. Louis Society of Dental Science and published in The Dental Review, July, 1903, Dr. Harlan describes his method as follows: "The pulp must be devitalized by the use of a corrosive acid or poison. In adults I leave the arsenical paste in the tooth from forty-eight to ninety-six hours. When the dressing is removed, I cut away the bulbous portion of the pulp and wash it with peroxide of hydrogen. I then dry the pulp chamber and slightly moisten it with dilute hydrochloric acid 1:300. The cavity is then packed with a papain paste composed of:

Papain gr. V.

Price's pure glycerin, minimis IV.

1-200 acid hydrochloric, minimis V.

I place a layer of paper fiber soaked in liquid vaseline over this and seal the cavity with oxyphosphate of zinc or oxysulphate of zinc. This is left for a period of two weeks in single rooted teeth, or three weeks in others, where there are two or more roots. When the tooth is opened, the pulp will be found to be wholly digested into a jelly-like mass, or it will be so altered or reduced in size that its remains can be washed from the canals with some pyrozone or peroxide of hydrogen, with little or no difficulty.

Time is the important factor in pulp digestion. When you remember the trouble and pain that the removal of dead pulps has caused your patient in the past, you will welcome a method so certain and sure in its results. I know that there are many pulps which can be removed from the roots easily by the use of local anesthetics, or by the pressure method of anesthesia, and there are many others easy to remove with broaches, but also, there are many in bicuspids and molars and even from other teeth where it is not easy to remove them without pain and the expenditure of much time. These are the cases where this method is applicable."

Dr. Harlan's method, I fear, will never become very popular because of the time required to digest the pulp tissue, but I can say

for it, besides being valuable in disposing of the tissue in fine and tortuous canals, that it is a method by which the color of the teeth can be preserved. It is a method, too, which obviates breaking broaches in these canals, a feature to be welcomed, and often a source of much trouble, as well as a cause of discoloration. I prefer, however, using sodium dioxide where the doctor advocates hydrogen dioxide. The former chemical converts the jelly-like mass into a soluble soap which is easily washed out with warm water, thereby mechanically removing any insoluble compounds that may have been formed by the oxidation and saponification of the remains of the digested pulp. In lower teeth, the dry powder can be placed directly into the pulp chamber in contact with the jelly-like mass and with a platinum broach, carefully work the powder down into the root-canals. It is presumed, of course, that the rubber dam is adjusted and all teeth included securely ligated. In upper teeth where it is difficult to place a powder into a cavity, I make a paste of the sodium dioxide with absolute alcohol, in which it is insoluble, and this can be handled more easily and safely. Having the paste in the cavity, the alcohol is evaporated with hot air, when the subsequent procedure is the same in either an upper or lower tooth. I use sodium dioxide in preference to the oxidizing solutions, as stated, because of the saponifying action of this chemical when properly decomposed. To get this action, distilled water must be used to decompose the powder in the cavity. This I proceed to do. The water rapidly decomposes the powder liberating oxygen and giving as a by-product sodium hydroxide. The oxygen disorganizes and the sodium hydroxide saponifies the fatty contents of the canals. This should be thoroughly removed and followed by the application of some weak solution of an acid (2% H_2SO_4), when by using alcohol the canals can be thoroughly dried and filled. In favorable cases, I have frequently digested the entire pulp tissue at once by the use of sodium dioxide. In the use of any digestor, however, the precaution must always be taken to have the tissue *thoroughly devitalized* before applying the agent, as it is not a pleasant experience for the patient to have *live* tissue digested.

No one who understands the chemical properties of sodium dioxide, will attempt to use this chemical without taking every precaution to prevent it coming in contact with the soft tissue about the mouth; and no one is justified in using it without a knowledge of its

chemical properties; for while it is a valuable agent and has many dental applications, it is not one to be used by careless operators.

Those of you who are using pressure anesthesia and are still having trouble with the discoloration problem, I would ask, are you careful in the selection of the remedial agents and materials with which you control the hemorrhage, sterilize, dry, and fill the canals of these teeth? That you may know all dentists do not exercise judgment in this regard, permit me to refer to two published methods of performing this operation. From Items of Interest, June, 1903, I quote the following from an article by Dr. W. Clyde Davis, Lincoln, Neb.: "Apply the dam if possible, and dry the cavity. If pulp is not exposed, but covered with a layer of softened dentin, apply first a drop of adrenalin, then one drop of a 40 per cent solution of formaldehyde. If quite a distance from the pulp, use slight, but continued, pressure with a rubber plug for a few seconds. You can now excavate to complete or near exposure painlessly. You are now where we all usually make an application of arsenic for devitalization and are ready to begin with the operation.

Apply to the cavity one drop of adrenalin, taking some up in the operation pliers. Lay in the cavity a few crystals of cocain or a small one-sixth grain soluble tablet. Apply one drop as above of a 40 per cent solution formaldehyde. Apply pressure with a rubber plug, at first very lightly but steadily, with not enough pressure to cause the patient any pain, gradually increasing the pressure until the end of 40 or 60 seconds you are kneading the rubber into the cavity with burnishers with all permissible force, none of which should cause your patient any pain. Now remove covering to the pulp chamber and pass broach slowly towards the apex. If there is a tendency to much hemorrhage or patient should feel in the slightest degree any movement of the broach, repeat the method again, being sure not to omit the formaldehyde. At the close of this you can remove the pulp of any tooth without the patient feeling the operation, and in cases where the tooth is slightly sore to percussion, as in advanced stages of pulpitis the soreness will have disappeared, as many times I find that the peridental membrane has lost its tactile sense. In cases of large apical foramen, where you are bothered with hemorrhage, again apply the adrenalin only, with pressure for fifteen seconds, and not another drop of blood will be discharged. Those who will may proceed with root filling. I prefer

to dress the root with a non-irritating dressing (campho-phenique) for twenty-four hours and then fill.

The advantages of the above are: First, it is painless; second, it saves time; third, the color of tooth is never changed; fourth, the after soreness is slight and many times wanting; fifth, your application is a powerful antiseptic."

Dr. Davis is extremely careful in his use of formalin and must be, if he verifies in practice his fourth advantage claimed for this method, viz., "the after soreness is slight and many times wanting." But I venture to say, that the doctor's assertion "that the color is never changed" is correct. In commenting favorably upon this article, Dr. D. E. McConnell, Gastonia, N. C., in Dental Hints, July, 1903, after describing and endorsing this method, says: "Occasionally there will be considerable hemorrhage. When this happens, first wash out the canal with peroxide of hydrogen, which removes the blood and also some of the irritant formaldehyde; then, either with a cotton-wrapped broach, or by means of a rubber plug, force some adrenalin chloride to the apex. This will control the bleeding, when you can cleanse with peroxide again, dry, and fill the canal."

Here is a method by two men, supposedly the same, one preserving the color of the tooth and, in this respect, the other invariably fails. Now, why this difference in results? Both use the same agents in the same manner, except the latter gentleman, in case of hemorrhage, first uses hydrogen dioxide which he claims "removes the blood." He should have said, which decomposes the blood within the tooth structure, forming an insoluble compound which, if not mechanically removed, is liable to produce subsequent discoloration.

The color of the blood is dependent upon the hemoglobin, each molecule of which contains iron feebly combined. When the nascent oxygen of the hydrogen dioxide solution comes in contact with the unstable molecule of hemoglobin, this substance is decomposed and ferric oxide is produced, the very compound which, for some years, I have contended was the cause of the discoloration of teeth from putrescent pulps. I know that the percent of iron in the homoglobin is small; but it is quite generally conceded, by the best authorities, that this metal chemically combined with certain other elements, constitutes the chief factor in the discoloration of teeth, from the decomposition of the pulp tissue. The only difference

here is in the formation of the compound. In the decomposition of blood by nascent oxygen, ferric oxide is produced directly, while to produce this compound, theoretically, from the decomposition of the pulp, would involve a long process of chemical reasoning—an explanation of which has been attempted by me in articles previously published and need not be here repeated.

We should never be hasty in controlling the hemorrhage after removing pulps by pressure anesthesia; for the escape of blood from the hyperemic tissue about the apical end of the roots is one of the best means of readjusting this tissue to its normal condition, and will also lessen the liability of causing peridental disturbances by the filling of the root-canal. If it is necessary to use a remedial agent to control this hemorrhage, we should select such agents as adrenalin chloride, which have an astringent, or constringing action upon the tissue, and then remove the blood from the canal as blood, and not use an agent which simply decomposes this fluid within the tooth structure, and which can have no hemostatic action upon the tissue whatever. In this instance the agent is decomposed in the canal and does not reach the tissue upon which it is expected to act.

In conclusion, I desire to emphasize the fact that we, as a profession, now a recognized specialty of medicine, must ever strive to increase our knowledge of pharmacology—a science which treats of the action of drugs upon the tissues, organs and functions of the body.





SOME CURIOSITIES ABOUT GOLD.

Gold is so very tenacious that a piece of it drawn into a wire one-twentieth of an inch in diameter will sustain a weight of 500 pounds.

Its malleability is so great that a single grain may be beaten out and divided into over 15,000,000 parts, each one distinctly visible to the naked eye.

A cubic inch of gold may, in like manner, be divided into 9,523,809,523 distinct parts easily seen with the naked eye.

A grain and a half may be so beaten out that it may be cut into 23,000,000 visible squares.

The surface of any given quantity may be extended under hammer some 310,184 times.

Eight ounces would gild a wire that would reach entirely around the world.

R. B. T.

HOW TO MAKE BEAUTIFUL PLASTER PLAQUES.

Especially Interesting to Dentists.

Take any picture you desire or any unmounted photograph, cut out neatly with well-defined, clean-cut edges, and lay in water for a few seconds, or until thoroughly wet through. Next take a smooth dish of suitable shape or an enameled basin and lay the picture face downward on the bottom and see that it is exactly centered. Wipe up surplus water and smooth out with care every wrinkle or fold. Now mark with a little strip of wet paper on edge of dish the exact top of picture. Mix enough plaster, reasonably thick, to cover bottom of dish to a thickness of near half an inch. Have dish stand exactly level and jar the plaster well down as it is poured in. Have ready a bit of ribbon tied in a loop with pretty knot and press the plain end well into the plaster before it sets near the edge at place indicated as top. Set aside for plaster to get thoroughly hard before removing. Now after removing go over the plaster with soapy water, or better soap-stone flour rubbed on with a soft rag. This leaves a beautiful finish. The plaster may be tinted as desired or may be gold enameled. Beautiful ornamentation may be produced in this way at little expense.

R. B. T.

THE AGE OF REGULATION.

If the permanent teeth erupt in malposition, treatment in the early stages is simplicity itself. The teeth are loosely surrounded by spongy bone and are easily moved; force is not needed; simply a gentle pressure to slowly guide the teeth to their proper position. As this is simply following out what nature is trying to do, there is little or no soreness in moving the teeth and not the slightest danger to the large, half-developed pulp of the developing tooth. Waiting always complicates the treatment.—J. N. Macdowell, *Dental Summary*.

THE PLAIN LOGAN CROWN.

In grinding a Logan crown to position I place a carbon paper disk to fit over the pin and down on the neck of the crown, where it comes in contact with the end of the root. When the crown is forced into contact we will find a black line where it strikes the root first. Remove the carbon disk and grind where the black mark is found. Repeat until the line is continuous at the periphery of the crown. If ground carefully, we will then have a perfect joint.—L. O. Green, *Dental Review*.

WHAT BUGS COST US.

We keep an army of 65,000 men and have 254 ships of war. We are ready to fight any nation on earth, yet the little potato bug laughs us to scorn. Did you ever hear of the great United States suffering from the ravages of the grasshopper? Are we not powerless before the gypsy moth?

The bug family taxes this country \$350,000,000 a year. The worms that attack the cotton plant assess the farmer \$60,000,000 a year. The potato bugs eat \$8,000,000 worth annually. The chinch bugs eat up \$100,000,000, the Hessian fly \$50,000,000 and the grasshopper \$90,000,000. Bugs, bugs, bugs! What a field for Prof. Geo. W. Cook. Something "Rough on Bugs" ought to be better than practicing dentistry.

R. B. T.





NOTICES OF MEETINGS

NOTICES OF MEETINGS.

Institute of Dental Pedagogics, Dec. 28-29, Buffalo, N. Y.

American Society of Orthodontists, Dec. 31, Jan. 1 and 2, Buffalo, N. Y. Secretary, Anna Hopkins, St. Louis, Mo.

STATE BOARDS.

Arkansas State Board, Dec. 4 and 5, in Little Rock. Secretary, A. T. McMillan, Little Rock, Ark.

Colorado State Board, Dec. 1, at Capitol in Denver. Secretary, M. S. Fraser, 407 Mack building, Denver, Colo.

Connecticut Dental Commission, Nov. 18-20, Hartford.

Pennsylvania Board of Dental Examiners, Dec. 15 to 18, simultaneously in Philadelphia and Pittsburg. Address J. B. Brown, secretary of Dental Council, Harrisburg, Pa.

South Dakota, Dec. 8-11, Vermillion. Secretary, G. W. Collins, Vermillion.

Ohio State Board, Nov. 24-26, Columbus. Secretary, H. C. Brown, Columbus.

INSTITUTE OF DENTAL PEDAGOGICS.

The next annual meeting of Dental Pedagogics will be held at Buffalo, Dec. 28-29, 1903. An exceedingly interesting program is being arranged, details of which will be published in the different journals.

W. H. WHISTLAR,

Chairman Ex. Board, Cleveland, O.

PENNSYLVANIA STATE BOARD.

The State Board of Dental Examiners held its annual meeting in Harrisburg, Oct. 2, and reorganized for the ensuing year. Dr. Hiram De Puy, of Pittsburg, was re-elected president, and Dr. H. B. McFadden, of Philadelphia, made a member of the board. A ruling was issued to the effect that hereafter the New York State dental license would be accepted for registration in Pennsylvania without examination, and that licenses would be accepted in New York on the same terms.

TEXAS STATE DENTAL BOARD.

The following were appointed members of the Texas State Board of Dental Examiners: Dr. C. C. Weaver, of Hillsboro; Dr. Merchant, of Giddings, and Dr. Westerfield, of Dallas.

SOUTHWESTERN IOWA DENTAL SOCIETY.

The seventh annual meeting of the Southwestern Iowa Dental Society, held at Albion, Oct. 13-14, was one of the largest meetings that it ever held, adding fifteen new members. Dr. J. H. Prothero of Chicago was in attendance. Dr. J. A. Ross of Osceola, the retiring president, secured the meeting for 1904 at that place. The following officers were elected: Dr. J. I. Tomy, Mt. Ayr, president; Dr. M. F. Stever, Creston, vice-president; Dr. J. A. West, Creston, secretary; Dr. G. E. King, Villisca, treasurer.

NEW ENGLAND ASSOCIATION.

The New England Association of Dentists elected the following officers: President, Henry McManus, of Hartford, Conn.; vice-presidents, Thomas J. Barrett, of Worcester, and Thomas Mound, of Rutland, Vt.; secretary, Edgar O. Kinsman, of Cambridge; assistant secretary, Charles F. Kreppes, of Forest Hills; treasurer, Edward B. Griffin, of Bridgeport, Conn.; librarian, Charles H. Riggs, of Hartford, Conn.; editor, David W. Johnson, of New Haven, Conn.

NEW DENTAL SOCIETY.

A new dental society, whose membership will be drawn from French-Canadian dentists, has been formed under the name of the Ondontologie Society of the Province of Quebec. Its officers are: President, Dr. J. Nolin; first vice-president, Dr. L. N. Lemieux, Quebec; second vice-president, Dr. J. G. Gendron; secretary-treasurer, Dr. G. H. Kent; corresponding secretary, Dr. E. Dubeau.

NORTHERN ILLINOIS DENTAL SOCIETY.

The Northern Illinois Dental Society met at Freeport, Ill., Oct. 21-22. The meeting was a successful one. The next meeting will be held at Sterling. The following officers were elected: President, A. W. McCandless, of Chicago; vice-president, C. J. Underwood, of Elgin; secretary, A. N. Harrison, of Rockford; treasurer, M. R. Harned, of Rockford; supervisor of clinics, C. B. Helm, of Rockford; executive committee, C. L. Snyder, of Freeport. The by-laws have recently been changed so that the executive committee is composed of only one member.



JONATHAN TAFT, M. D., D. D. S.

Dr. Jonathan Taft, for many years professor of operative dentistry in the dental department of the University of Michigan, and the oldest member of the university faculty, died October 15, 1903, at the residence of his daughter, 805 Huron street, Ann Arbor, Mich.

His death is the passing of one of the old-time dentists of this country, one whose name is favorably known wherever dentistry is practiced as among the oldest and best authorities in the profession.

Dr. Taft was past eighty-three years of age, and for over sixty years has he been prominent in dentistry. He was born in Russellville, Brown Co., Ohio, Sept. 17, 1820. He was educated in the common schools of Ohio, and in a small academy in Brown County, and afterward taught school for several years. While attending the academy the late Gen. U. S. Grant was also a student there.

In 1841 he began the study of dentistry in the office of Dr. George D. Tetor, in Ripley, Ohio, and began practice for himself two years later in the same place. In 1844 he located at Xenia, Ohio, and practiced there about fourteen years. He graduated from the Ohio College of Dental Surgery in 1850. In 1854 he was appointed professor of operative dentistry in that school and occupied that chair until 1879, when he resigned to take a similar position with the University of Michigan. While connected with the Ohio College of Dental Surgery he was dean for the larger part of the time. Through his college work, and his general interest in professional affairs, his writings and editorials, he had much to do with advancing professional standards. He began editorial work in 1856 on the "Dental Register," a monthly periodical, and held this position until 1900.

In 1857 he located in Cincinnati, where he established a fine practice, which he relinquished in 1901 and moved to Ann Arbor.

As early as 1859 he wrote a text book on operative dentistry,

which for many years was the standard work on this subject. He was a member of every important organization for the advancement of his profession, and rarely missed any important dental convention.

In the year 1875 he was selected to organize the Dental Department of the University of Michigan, and was made dean of the department.

He always stood for high professional attainments, and established the Ann Arbor college on the highest educational basis known in those days, and has ever been foremost in raising higher standards in dental education.

As a man he was beloved by all who knew him for his ever kind and benevolent demeanor and sincere and personal worth.

In the dental profession he had friends the world over, and was looked upon with the highest regard as one who always stood for and strived for the best. In his death the profession loses a shining light, a leader of high purposes and a man of superior intellect. The well known kindly face of Dr. Jonathan Taft will be sorrowfully missed by hosts of the sincerest friends in the dental profession, as well as by other hosts in other walks in life, for he was a man among men wherever affairs in life took him. He was a grand and noble character.

RESOLUTION.

ON THE DEATH OF DR. TAFT BY FRATERNAL DENTAL SOCIETY OF ST. LOUIS.

October 20, 1903.

Whereas, After a long and useful career of sixty years as practitioner, author, journalist and teacher, death has ended life's work of Professor Jonathan Taft, who was universally loved and respected by the dental profession for his scholarly attainments and high ethical standing;

Whereas, In the death of Dr. Taft our profession has lost an advanced thinker and an able and enthusiastic exponent of the best in dental surgery;

Be it resolved, That the Fraternal Dental Society of St. Louis extend our sincere sympathy to Mrs. Taft in her bereavement, which is the bereavement of the whole profession, and express our high regard for the worth and character of this pioneer, who so ably exemplified the highest ideal of American dentistry.

Unanimously adopted Oct. 20, 1903.

W. L. WHIPPLE,

President pro tem.

E. E. HAVERSTICK,

Secretary.

In Memoriam.

DR. W. C. BARRETT.

WHEREAS, In the fullness of time, having lived nearly the allotted three score years and ten, our friend and associate William Cary Barrett departed this life on August 22nd, 1903, Death is the anticipated end of man and we rejoice that our beloved brother sleeps the sleep that knows no waking, in the full consciousness that he had performed all the duties of life in a manner that we, his associates, may strive to emulate. May his spirit rest in peace.

THEREFORE BE IT RESOLVED, That the members of the Odontological Society of Chicago, in full meeting assembled, testify their belief in the upright character, and devotion to principles of their brother, W. C. Barrett, and they one and all mourn his sudden taking off. This society tenders to his family and friends their sincere condolence, and it is ordered that a page be set apart in their record book to permanently preserve this note for all time.

RESOLVED, That a copy be sent to the leading dental journals for publication and one to the widow of our friend.

COMMITTEE { A. W. HARLAN
 { TRUMAN W. BROPHY
 { JOSEPH W. WASSALL.

DR. CHARLES H. THAYER.

Dr. Charles H. Thayer died at his residence November 3. He was a leading dentist, having practiced his profession in Chicago from his arrival in 1870, and having held chairs of dental surgery in several medical schools. He was born at Franklin, Mass., in December, 1841, and served in the civil war as captain in the First Rhode Island cavalry. He was at Fisher's hill and served through the Shenandoah valley campaign under General Sheridan. He was a member of the Loyal Legion. Dr. Thayer was twice married. His first wife was formerly Miss Juliet Reed. She died twenty years ago. His second marriage was to Miss Etta Grover of Evanston, who survives him. He leaves three children, Aline, his daughter by the first marriage, and a son and daughter by the second marriage, Nathaniel and Marion.

FUNERAL OF DR. BARRETT.

The funeral services for the late Dr. William C. Barrett, dean of the dental department of the University of Buffalo, was held Oct. 5 from the family home in Buffalo, N. Y.

There were many beautiful floral offerings. The service was attended by a large number of students of the dental department of the university and by many alumni as well as by friends of Dr. Barrett. A quartet of students and former students of Dr. Barrett sang "Nearer, My God, to Thee," while the church choir rendered "Lead, Kindly Light," and "One Sweetly Solemn Thought" and chanted the Lord's Prayer. Eulogies on the life and work of Dr. Barrett were delivered by Dr. Roswell Park of Buffalo and Dr. T. W. Brophy, dean of the Chicago Dental College.

The honorary bearers were: Dr. Roswell Park, Dr. Delancey Rochester, Dr. M. B. Straight, Dr. Simon Eschelman, Dr. A. A. Hubbell, Robert Keating, George Gorham and Adelbert Moot. The bearers were the following named students of the dental college of the University of Buffalo: Harry K. Eckler, Fred B. Wilson, Grover Murdock, Earl Packwood, R. L. Barber, J. Hadley Rasey, Harry Parker and David A. Diltz. At the close of the service the Rev. Frederic C. Brown offered prayer.

DR. C. M. GILL.

Dr. Charles M. Gill, one of Baltimore's oldest dentists, died at his home. Dr. Gill's death was due to a cancer, which began in a pimple on the forehead a year ago, and gradually permeated the whole system. He was confined to his house about ten days. Dr. Gill lived in the neighborhood in which he was born up to a year ago, though the aristocratic residences which once surrounded it had long since given place to business houses. He was married three times. He left a widow, who was Miss Mabel Ridgely, and three children, Miss Mildred Gill, Dr. R. Lee Gill and Mr. Samuel E. Gill, as well as two brothers, Messrs. S. H. and E. A. Gill.

DR. ASA A. HOWLAND.

Dr. Asa A. Howland, one of the oldest and best known dentists in central Massachusetts, died at Worcester, Oct. 21, aged 83 years.

DR. H. W. SPICER.

Dr. H. W. Spicer, of Colorado Springs, Colo., was found dead in his office in Pueblo Oct. 6. Death was caused by an overdose of chloroform taken to deaden pain from neuralgia, from which the young man had been suffering for some time.

Dr. Spicer, who was but 28 years old, had practiced dentistry in Pueblo for the past eight years. He was a graduate of a Kansas City dental school.

DR. CALVIN CARTWRIGHT.

Dr. Calvin Cartwright died Oct. 11 from the effects of a paralytic stroke. Dr. Cartwright was born Dec. 14, 1831, at London, Canada. In 1869 he graduated at the Royal College of Dental Surgeons of Ontario, and has been in active practice ever since, twelve years of which was in Salt Lake City. He located in Logan in 1898. He had been married twice, two children being the result of the first union and none of the second. He leaves a wife, two children, two stepsons and a stepdaughter.

DR. CHARLES EDWARD MENSCH.

Dr. Charles Edward Mensch, one of the oldest and best-known dentists of Brooklyn, died after a lingering illness at the summer home of his daughters at Atlantic Highlands, N. J., Oct. 6.

He was an old resident of Brooklyn, and was one of the pioneers who crossed the plains to Pike's Peak when Denver consisted of but a few log cabins.

He was also a veteran of the Civil War, having fought at Bull Run and Gettysburg. He was a member for more than twenty years of Bedford Lodge, No. 574, F. and A. M., and is survived by two daughters, Mrs. Edward M. Tucker and Mrs. Clinton Spader, both of Brooklyn.

DR. C. L. CHANDLER.

Dr. Charles L. Chandler, who followed the profession of dentistry in Syracuse, N. Y., for nearly half a century, died Oct. 12. He was 76 years of age and had lived in Syracuse for fifty years.

For many years Dr. Chandler was one of the most prominent members of his profession in Syracuse. He first practiced in the office of his father and later became a partner. Later the father and son dissolved partnership.

Dr. Chandler was born in Schenectady. In 1849 he married Miss Olivia Ross, formerly of Syracuse. On October 21, 1898, Dr. and Mrs. Chandler celebrated their golden wedding anniversary. Dr. Chandler was always active in the Presbyterian church and for a long time was a deacon of the First Presbyterian Church.

PERSONAL AND GENERAL

MARRIED.

Dr. W. E. Lyons to Miss Estella B. Stamlish, October 26, at Chicago.

ROBBED.

The office of Dr. C. B. Rohlard of Alton, Ill., was robbed October 7 of gold to the value of \$100.

GOES TO GERMANY.

Dr. and Mrs. J. A. Kennedy of Kent, Ohio, have sailed for Germany, where Dr. Kennedy has accepted a position as assistant in a large dental office.

FROM ETERNAL CITY.

Dr. A. T. Webb, formerly a practicing dentist in Chicago, a resident for the last eighteen years of Rome, Italy, and the dentist to King Victor Emmanuel, has been in the United States for three months renewing old associations.

DR. GOOD EXONERATED.

Dr. Robert Good, a dentist at Madison and State streets, arrested several weeks ago on a charge of assault and battery, made by Miss Helen Grossman, was discharged by Justice Prindiville October 29.

SUES A DENTIST FOR BREACH OF PROMISE.

Mrs. Myra Beals of Westchester county, New York, has brought suit for \$20,000 against Myles J. Evans, a wealthy dentist. She charges him with breach of promise. Dr. Evans was married only three weeks ago to Miss Anne Wells.

BURNETT GETS A NEW HEARING.

In the case of Orville S. Burnett, a dentist of Chicago, who was convicted for the murder of Charlotte S. Nichol and sentenced to the penitentiary for fifteen years, the Supreme court reverses the judgment of the lower court and remands the case to the Criminal court of Chicago for further proceedings in harmony with the opinion of the court.

STUDENTS OUT AGAIN.

The students of the dental department of the Western university at Pittsburgh, who were discharged after being arrested for riotous conduct at the college building, celebrated their release by a parade. They made a good deal of noise on the downtown streets and finally wound up at the exposition. They carried banners announcing that they were "jail birds yesterday," that they "would be good till the next time" and other things. They were headed by a band.

ROBBERIES.

The office of Dr. L. H. Jones of Utica, N. Y., was robbed during September of money and gold to the amount of \$300.

NEW MEMBER ON MICHIGAN BOARD.

Gov. Bliss has appointed Dr. W. C. McKinney of Saginaw, a member of the board of examiners in dentistry, succeeding Dr. E. T. Loffler of the same place. The term is for three years.

Dr. W. C. Thomas of Alexandria, Ind., suffered the loss of everything of value, including instruments and materials by burglars, September 8. Loss, \$200.

ASSIGNEE OF DR. TIMME BEGINS SUIT.

Oscar A. Krone, as assignee of Dr. Charles A. Timme, a dentist practicing in Germany, has brought an action against William Mertens in the Supreme court to recover \$1,128.50, for money paid by Timme at the request of Mertens to detectives for shadowing certain persons in Germany, and to recover \$1,825 for professional services rendered to Mertens and others at his request.

Dr. Southwell Didson of Baliner, Tenn., has been appointed a member of the Tennessee state board to succeed Dr. J. L. Newborn, whose term had expired.

DIES IN DENTIST'S CHAIR.

While in a dentist's chair in San Francisco, in a partial state of anæsthesia, induced by the administration of chloroform, H. H. Waugh, a druggist, was overcome presumably by the drug, and the united efforts of several physicians failed to save his life. The office of Dr. Charles J. McCarthy, where the deceased had repaired for the extraction of several teeth, was the scene of the distressing affair. Waugh, accompanied by Dr. F. S. Emmel, went to Dr. McCarthy's office. After all the necessary arrangements had been made the unfortunate man seated himself in the chair and Dr. Emmel administered chloroform. He had hardly got under the influence when the physician noticed that the heart action was very feeble, and Drs. Hughes and Austin were summoned. Before their arrival death had ensued.

DENTIST HAS MEN ARRESTED AS ASSASSINS HIRED BY HIS BRIDE.

Nathan Young and Paul Brenner, accused by Dr. B. B. Brandeis, a dentist, of having been hired by his wife to kill him or at least to do him bodily harm, were held in the police court, New York City, without bail. Behind the court proceedings there is a story of romance, revenge, love, hate, cruelty and much mystery. Seven months ago Miss Ray Rosenblatt came from Winnipeg to visit relatives. She met Dr. Brandeis, fell in love with him and married him after a brief courtship. Two weeks after the marriage the bride complained to the police of cruel treatment by the bridegroom. Since then the police books have been lined with the troubles of Dr. and Mrs. Brandeis.—Chicago Chronicle.

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